APPENDIX C

NEWSPAPER ARTICLES

Warren Sentinel 12 Nov 98

EPA begins clean-up at Stauffer Chemical plant

By MICHELE SULLIVAN
The Warren Sentinel

Bentonville's most popular youth attraction is about to close down.

The old Stauffer Chemical plant, which closed in 1964 and has been falling down ever since, has come under the firm hand of the Environmental Protection Agency. EPA's on-site coordinator for the Avtex Superfund Site, Mike Towle, said the agency could have the first stage of a Stauffer cleanup complete within four months.

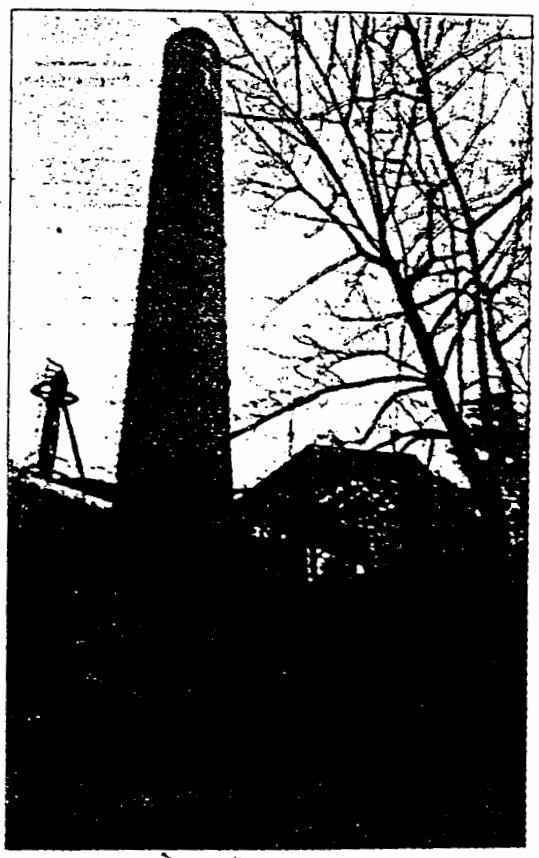
Since the plant shut its doors, it has been an almost irresistible lure to local kids, according to South River District Supervisor Stuart Rudacille, who has been trying to get a cleanup started at the plant for years. Skateboarders, rock-throwers, and young lovers have made it a popular place for all those sports. Teens looking for a place to cool off seek heat relief in open concrete tanks that once held water for cooling machinery, and are now a makeshift wetland filled with reeds, frogs, and rain.

If no business entity or individual owner can be found or held liable, then the EPA Superfund will cover the entire cost of the cleanup.

But although Towle acknowledged that the plant isn't a safe playground, the EPA isn't out to fix that kind of hazard. Samples from debris scattered over the 3-acre site came back positive for hazardous waste — sulfurous acid compounds.

The plant once produced carbon disulfide, a dangerous compound used in rayon manufacturing. The chemical

See **Stauffer** *page A6*



SENTINEL PHOTO/STEPHEN AUSMUS

The Environmental Protection Agency is cleaning up the old Stauffer Chemical Plant.

Stauffer

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was shipped by rail to the Avtex plant. Carbon from charcoal and chunks of sulfur were the components of the compound, and still litter the grounds. In some places, said Towle, the sulfur is up to four feet thick. When rain falls on the sulfur, it leaches into the ground, carrying with it acidic compounds, and possibly contaminating groundwater, he said. The site is unprotected, so anyone can walk over the acidic areas.

"We are trying to restrict access to the waste, and to neutralize the acid it releases into the ground," he said.

The "Band-Aid" EPA put on this problem, while trying to figure out the ultimate solution, is just simple powdered lime, which neutralizes acid. But EPA workers are also using an excavator to scoop up the sulfur and dump it all in one spot, to make dealing with it easier when a decision is finally made.

Several options are available, Towle said, depending on the amount of waste that is gathered. If his estimate of about 5,000 cubic yards is close, the most cost-effective method would be to remove the waste to an appropriate landfill.

"That would cost about $50-$60 per ton," he said.

If there is more waste than he predicts, things could change. Dumping wouldn't be cost-effective. EPA would then consider some on-site treatment, like covering the waste with a permanent seal, or neutralizing it and leaving it there.

"We have to weight the pros and cons, which ones would work the longest and cost the least."

He's awaiting the results of more studies about the exact composition of the waste, and a report about the volume. Then, he said, he will decide the course of action.

In the meantime, Towle and Bob Kelly, the on-site coordinator for the Stauffer site, are trying to assess how seriously the runoff has affected area groundwater.

"I've offered well testing to residents who live reasonably close to the site," he said. "So far, only one or two have called me about it. I hope there will be more."

Some plant neighbors have complained about a strong sulfur odor and taste in their well water.

Towle said the EPA is also researching the business status of Stauffer Chemical, and trying to locate the site's current owner in an effort to find someone who will help foot the cleanup bill. If no business entity or individual owner can be found or held liable, then the EPA Superfund will cover the entire cost, he said.

Removing the sulfur compounds may be just the first step in a longer cleanup process, he said. The plant contains a large amount of asbestos, a known carcinogen. Unknown compounds, which could be quite nasty, might be lurking in pipes, machines, and even in the decrepit smokestack that now threatens to tumble down.

"We just don't know what's in there," Towle said. "There's definitely stuff I'd like to avoid people coming in contact with, and I'd like to move it all out. We're not sure how to take care of it. When the test data comes back, we'll make that decision as well."

FORECAST

The Warren Sentinel

INSIDE

OPINION A4

- Open your eyes
- Great music
- Nurses needed

Down on th luck

129th Year No. 37 | Thursday, December 10, 1998 | 635-4174 | *Established in 1869* | Front Royal, Virginia | 2 Se

$1.4 mil allotted for Stauffer cleanup

By TERESA BRUMBACK
The Warren Sentinel

The United States. Environmental Protection Agency pumped in an additional $1.4 million last Tuesday for cleanup of the defunct Stauffer Chemi-

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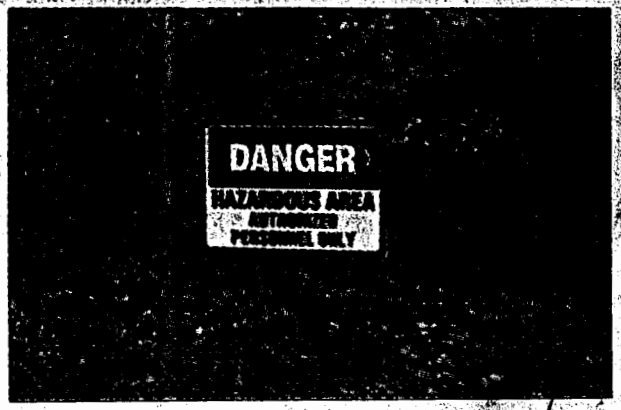


An EPA sign at the Stauffer site warns people to keep away from the hazardous chemicals present there. EPA us now cleaning up the area.

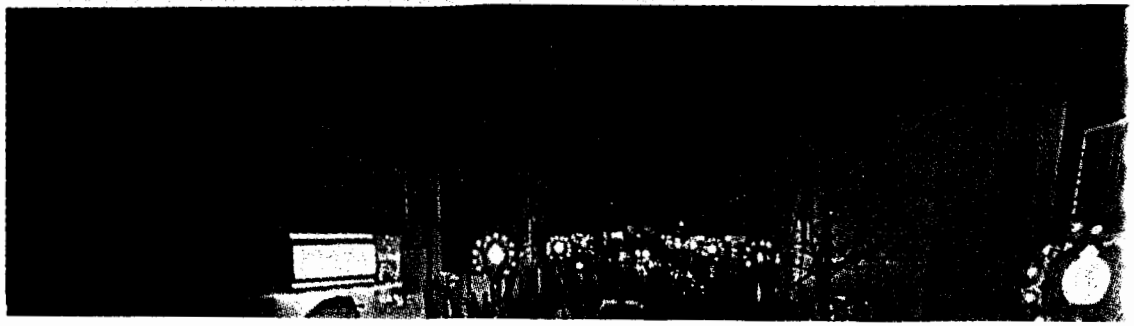
SENTINEL PHOTO/ STEPHEN AUSMUS

Board suspends directors during

By MICHELE SULLIVAN
The Warren Sentinel

Anne Carbaugh, director of Warren County' Department of Social Services, and Assistant Director Mary Goodwin were each suspended with pay for 10 days Tuesday afternoon, while a private law firm investigates discrimination claims filed by former employee Ann-Louise Brown.

Santa Claus was comir



lowing lights on its billboard, which seeks advertisers. The town re-

The issue of billboards in town has flared up with the civil cases,

Hal Sharp recently advised the company that new lights at the bottom of

issued by the Virginia Dep Transportation for safety

ORIGINA

Stauffer

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cal plant in Bentonville. The amount is in addition to the $200,000 EPA allocated in October to assess the extent, type and degree of contamination.

And, unless there are some nasty surprises along the way, cleanup at Stauffer Chemical is projected to be fast and relatively cheap for a Superfund site.

Still, the types and extent of contamination are much of a mystery for now. "We don't know what's in there," said Robert Kelly, the U.S. Environmental Protection Agency's onscene coordinator at the site. "We're like shooting in the dark here. We haven't been able to find plans of the building. We're taking it one step at a time."

If all goes as expected, the Stauffer site could be cleaned up in four months, Kelly said.

Cleanup at many Superfund sites, such as at Avtex, can drag for years. But others, may take as little as two weeks, said Kelly.

Work is going on now to assess the type, extent, and breadth of contamination before emergency removal efforts begin, he said.

Soil sampling is underway to figure out what hazardous chemicals are present.

Water at selected residential wells in a half-mile radius of the site will be tested for contamination over the next few weeks. Anyone living near the site who wants to have their water tested is asked to contact EPA at its onsite office at 636-1069 or 636-1885. Results are confidential, officials said. Seven wells were tested in 1996 and none were found to be contaminated, he said.

The Stauffer site, with its skeleton of wooden and brick buildings and smokestack, is behind the Foodway market in Bentonville. The concrete floor inside the main building was dug up, exposing the ground underneath.

"There's trees growing through it and everything else."

Drums of waste and lagoons, common at other hazardous waste and Superfund sites, haven't been found here. But officials did find two underground storage tanks. "They seem full, but we don't know if it's

> *"We don't know what's in there. We're like shooting in the dark."*
>
> **Robert Kelly**
> **Stauffer clean-up coordinator**

product or water," Kelly said.

Friable asbestos was found coating the bare ground inside the building, he said.

Around the building, pH tests of soil have found 10,000 yards of soil to be contaminated with sulfur-based acids, Kelly said. Acids are a corrosive waste and can cause burns.

"We neutralized the acid release by spreading lime down on the ground," he said.

An old water holding tank at the site is used by neighborhood children as a swimming pool when it fills up with water.

"The water is good, as far as we know. We tested it, but we don't know. The pond is 15 feet deep. That's one of our assessments to do at this time, a sample of what's at the bottom."

Aside from that, everything else about the site is pretty much a mystery.

"We don't know what they did in that (main) building, to tell you the truth," Kelly said. "We have no plans, maps or nothing of this place. We couldn't find no back data on it."

Some people who attended a recent community meeting about the cleanup of the site were helpful in providing some information, he said, but Kelly urged anyone with other information that might be useful in understanding the plant's operations or layout, to call him.

A preliminary engineering investigation shows that the shell of the building remaining onsite is structurally sound.

The Stauffer plant manufactured carbon disulfide through blending charcoal and sulfur. The compound was a necessary part of the rayon manufacturing process at Avtex, and was shipped by rail to the Front Royal plant.

Carbon disulfide is extremely flammable at very low temperatures, and had to be shipped in water-filled cargo tanks to prevent explosions,

From there, the carbon disulfide was shipped by rail to the Avtex site in Front Royal, where it was used in the making of viscose for high-tenacity rayon, officials said.

Since the plant shut down in 1958, the site has been stagnant. Stauffer Chemical of Delaware has been identified as a responsible party, and will be asked to compensate EPA for cleanup costs, Kelly said.

Kelly said, as on-scene coordinator, he oversees the cleanup by EPA contractors. He said unlike some other EPA onscene coordinators, he doesn't have a college degree but has worked for EPA two years. He carries with him 15 years experience removing hazardous waste from aircraft carriers and other defense transportation at the Philadelphia Naval Shipyard.

"I'm legitimate," he said.

A few years ago, an on-scene coordinator at Avtex left after officials learned he had made up some of his credentials.

Mike Towle is Avtex's current on-scene coordinator.

Investiga

that found the discriminati unfounded after an interna gation they ran in 1997.

The board agreed to hi firm of Hall, Monahan, Eng and Mitchell to more fully i Brown's claims. The Board visors agreed on Monday b sus to fund the cost of t Tederick said.

The new investigation at 4 p.m. on Dec. 16. At it meeting, the Social Servic will either dismiss the charg further disciplinary action a women. If further action Tederick said both charge dence against Carbat Goodwin will be made pub

Tederick also cal department's 1997 internal i tion of Brown's allegatic sory," undocumented, a equate. He and other board were incredulous when the during a meeting with DS Tuesday, that only three e had been interviewed duri vestigation. Brown was n those.

The new seven-memb was installed last spring, the three-member boa launched the investigation. said he expanded the board a seat on it with the express

Northern Va Daily 10/14/98

Toxic waste may be removed from Stauffer site

EPA officials say tests have detected solvent and metals

By Diane Hartson

As major cleanup and demolition work at the Avtex Fibers Superfund site winds down, Environmental Protection Agency officials are turning their attention to another toxic site in Warren County.

The agency may soon recommend that toxic waste at the former Stauffer Chemical plant in the Bentonville-Browntown area be removed, an agency official said.

Tests performed at the site in April showed the presence of carbon disulfide, a solvent that was produced at the plant for several decades and used for making rayon at the Avtex plant, said Robert Kelly, the agency's project manager at the Stauffer site.

The carbon disulfide was found "in two tanks/sumps located in the former production area as well as in samples collected from the brick dump adjacent to the former acid pond," Kelly says in a recent memo to Chris Sitaram, Brownfields Program director with the state Department of Environmental Quality.

The tests also showed the presence of heavy metals, including chromium, zinc, iron, aluminum, copper and nickel, in ponds at the site, the memo says.

"Heavy metals contamination has also been detected in the barren area in the southwest portion of the site which was reportedly used for the disposal of process wastes," it says.

The plant opened in 1945 and ceased operation in the late 1950s or early 1960s, Kelly said.

"We are looking at removal," but no decision has been made to begin removing the wastes, he said.

"We're still analyzing the preliminary report" on the findings at the site, he said.

But in a Sept. 30 letter to county Planning Director Douglas P. Stanley, Sitaram says "the DEQ understands that the [EPA's] Emergency Response Center will refer the site for a removal."

Kelly said the EPA looked at the site in 1984 and 1986 and found heavy metals in the surface water there.

According to his memo, "a work crew in 1985 constructing roads on a private subdivision located in the area of the former acid pond witnessed paint corroding off their bulldozer as well as incidents of spontaneous combustion on the ground, potentially indicating the presence of carbon disulfide."

The final report including a decision on what remediation steps should be taken will be released in a few weeks.

Carbon disulfide can cause such effects "in its highest form, but after all these years, it's probably not as lethal now," Kelly said.

EPA officials are researching who owns the site. The owners "will be given an opportunity to clean it up themselves once we determine what needs to be done there," Kelly said.

If the owners don't voluntarily clean up the site, the agency will ask a court to force them to pay for a federal cleanup, he said.

The final report including a decision on what remediation steps should be taken will be released in a few weeks, according to Kelly.

If the removal of chemical contamination is recommended, some of the people working on the Avtex cleanup and demolition will probably work on the Stauffer site.

County Attorney Douglas W. Napier said that he believes the Stauffer site is the only other contaminated site in the county linked to the Avtex plant.

Avtex voluntarily closed its doors in 1989 after being cited for more than 2,000 violations of environmental laws. It was declared a federal Superfund site in 1986.

Agency officials are studying what further cleanup efforts are needed at that site in Front Royal.

Ms. [illegible]wkin[illegible] her [illegible], [illegible]
Hawkins Jr., who was a passenger in her
car, Spychala and Bernadotte Melling, who
was a passenger in his car, were taken to
Warren Memorial Hospital, Rowe said.
Ms. Hawkins and Spychala were released
after treatment while Hawkins and Ms.
Melling were admitted and listed in good
condition Thursday evening, a hospital
spokeswoman said.

School frame to be built

The steel frame of Warren County's
planned second middle school, which will
[illegible]ienta[illegible]hool, expe[illegible]o aff[illegible]is
project.

"As long as it's fit to work, work goes on," Wolf said. "It's a pretty hardy bunch of people in this business."

Excess dirt still remains a problem.

In late September, the board learned that there was more dirt on the site than the building designer expected. The dirt must be removed or graded so surface water can run off, but the board hasn't decided which tack to take.

"Something has to be done because of drainage," Ms. Poe said. "We need an esti-

In the Cash 5 game, there were no winners.

The numbers were eight, 11, 25, 32 and 34.

VMI ceremony may change

LEXINGTON — The traditional "breakout" ceremony that marks the end of the rat line for Virginia Military Institute freshmen may change this school year.

Instead of climbing a muddy hill to join upperclass cadets after six months of rigorous training, the freshmen who arrived at

MON[illegible]Bell[illegible]tic w[illegible]n-
tribute $200,000 to Virginia Tech to help make interactive technology available to all elementary and secondary schools in the state.

Virginia Tech will use the grant announced Wednesday to add a digital bridge that will enable schools to conduct video conferencing with other schools, community colleges and universities across the state.

The Virginia Department of Technology will share with Virginia Tech the responsibility for overseeing the operation.

EPA officials discuss extent of pollution at plant

Next step is to locate owner of property

By Brendan Minite

Almost four years after Warren County officials asked the state to clean up pollution at the Stauffer Chemical plant site near Bentonville, federal officials are considering the extent of the pollution.

Stauffer Chemical manufactured carbon sulfide from 1946 until the plant closed in 1960, Bentonville resident and former plant employee John Lowe said.

The carbon sulfide was sold to other manufacturing firms, including Avtex Fibers, which is itself a federal Superfund site.

Nearly four years ago, county officials asked the state Department of Environmental Quality to have the site cleaned up, county Planning Director Douglas Stanley said. The state then asked the federal Environmental Protection Agency to test the site, he said.

The agency's initial tests resulted in its sending on-site coordinator Mike T. Towle to conduct further tests and recommend a plan to the agency.

Towle filed his recommendation Tuesday and on Wednesday night discussed his findings at a community information meeting in the Bentonville fire station.

Towle said he found many toxic chemicals at the site, including asbestos, arsenic, chrome, cyanide carbon disulfide and either sulfuric or sulfurous acid.

"It will never stop releasing the acid," he said. "Its been doing it for 30 years and it will do it 30 years from now."

To slow the damage, Towle said he poured lime on the acid to neutralize the discharge.

The next step is to locate the owner of the property and contact Stauffer Chemical, or the company now responsible for the mess, to see "if they will do the right thing and clean it up," he said.

"Right now the attorney is contacting Stauffer and telling them what the EPA is doing," he said. "The project is in a state of flux."

It isn't clear who will clean up the site.

"If nothing else changes, my group will do the work to clean up the site," Towle said.

It is possible that the EPA may get more involved if the site turns out to be more polluted than preliminary tests show, Towle said.

Local residents shouldn't be alarmed because the pollution at the site isn't "real pervasive," he said.

Towle said he will create an "information dump," where people can see relevant documents and information.

He also will test well water for residents for free. Residents interested in having their well tested should call 636-3481 and say they live near the Stauffer Chemical plant.

"We prefer to conduct all water testing at one time, so we will make a list and determine a convenient time for everyone," Towle said. "Well tests are also not public information."

The EPA also has to leave the site in better shape than it is now, which means it will fill any holes, replace trees and repair roads damaged during the cleanup, he said.

"We don't leave things worse off then they are," he said. "Just keep a tally of your trees, if you are concerned. We have to replace them."

Residents also shouldn't be alarmed by workers wearing protective clothing, officials said.

"If you see them with respirators on, don't be afraid," EPA spokesman Patrick Gaughan said. "They have to protect themselves. That doesn't mean you are endangered."

"My men are down in it, so they need protection," Towle said. "I protect my workers with masks and such. I protect you by controlling emissions.

"White suits are wonderful. They keep your clothing clean. Those workers don't make a lot of money."

ORIGINAL

The Warren Sentinel, 03/06/97

Attractive nuisance

By MICHELE SULLIVAN
The Warren Sentinel

County officials agree the old Stauffer Chemical plant is a lawsuit waiting to happen. But whose problem is it?

SENTINEL PHOTO/STEPHEN AUSMUS

John Lowe, a Bentonville resident who worked at the Stauffer Chemical plant for 14 years, shows the building where carbon and sulfur were once merged to form carbon disulfide, which was used in the manufacture of rayon at Avtex.

In its heyday, the Stauffer Chemical plant in Bentonville went full-blast almost 'round the clock, its 28 immense furnaces fusing two common elements — carbon and sulfur — into a new and dangerous liquid.

The carbon disulfide (CS2) produced there, and in five similar plants along the east coast, was a crucial element in the rayon-manufacturing process. All of the CS2 produced in Bentonville ended up just a short train ride away, at the Avtex plant in Front Royal.

In 1964, however, the furnaces went cold. The Bentonville plant was one of several Stauffer closed when it consolidated production into two larger plants.

It didn't take long for decay to set in. The insulated glass windows broke under the weight of snow and from rocks pitched at the convenient targets. The sheet metal covering some of the buildings peeled off. Seeds from the surrounding woods found their way through the holes and set up a new forest inside, complete with cedars, sumacs, and honeysuckle.

Above it all, the brick furnace chimney rises, tottering a bit to the east these days. White bricks in the tower once proclaimed "STAUFFER." Now, after a previous owner partially dismantled the structure, only the "ER" remains. The bricks above the letters are pulling away from each other, leaving cracks at least six inches wide where the mortar has fallen. Only

See **Stauffer** page A10

file w/ Stauffer Chemical Co. (VA-273)

Stauffer

wide steel bands seem to be holding the upper portion of the tower together.

It's a scary-looking place to most adults — ruins of brick and broken glass, drains barely covered with metal rusted thin as cardboard, and cement tanks filled with rainwater, some of it tinted pickle-juice green by the sulfur chunks that still litter the ground.

Kids see the plant in a whole different light, said John Lowe, a Bentonville resident who worked at Stauffer chemical for 14 years.

Lowe spoke to the Warren County Board of Supervisors last month, describing what he said has become Bentonville's most hazardous playground. He invited the board to take a guided tour of the plant last Thursday, pointing out the hazards along the way.

The supervisors agreed with his assessment — the old plant is a tragedy waiting to happen.

"What would happen if a kid came back here to play and fell in there," said Lowe, pointing to an enormous cement holding tank, now filled with about 10 feet of water. "How long do you think it'd take to find him back here?"

Lowe's remarks are not unfounded. The "swimming hole" at Stauffer is apparently one of Bentonville's most popular youth attractions. Stuart Rudacille, in whose district the plant lies, said he's known dozens of youngsters who have spent the hot summer days swimming in the tank and diving down from the rickety wooden scaffolding that once held equipment above it.

Ranjit Kandola, who owns the Foodway market near the plant on U.S. 340, said carloads of teenagers arrive every weekend during the warm months. The kids park in her parking lot and take off for the ruins behind.

"I don't know what they do back there, but they're there all day long," she said.

The visitors have contributed to the plant's decay as well. There's not a single window left whole; huge areas are completely covered with a layer of broken glass at least an inch deep. The inner walls of the brick buildings — most of which are still solid and sound — are covered with graffiti, colorful in both tint and content. One building has been turned into a skateboarding arena, complete with wooden jumps that send skaters careening across the smooth concrete floor.

The board also has some questions about possible environmental hazards at the site. The two components of CS_2, sulfur and carbon from charcoal, are not dangerous. However, the by-product was a toxic, explosive liquid. Remnants of it could still be lurking in the old pipe system that runs through the buildings and under the ground, according to Monte Cole, an environmental engineer with Terra Firma Inc. Cole, who came along on the tour to give his impressions of how the site could be reclaimed, said he was sure the plant also contains plenty of asbestos, a known carcinogen, as well.

The sulfur that remains on the ground has apparently left its calling card in nearby wells. Kandola had the health department test the tap water at Foodway because of its strong rotten-egg odor. The sample came back with a high sulfur level.

"They said it was safe to drink, but we don't drink it," she said. "We use bottled water. I've heard from a lot of the people who live on this side of the road that they have a similar problem. But the people on the other side of the road don't have the problem. It's just over here, near the plant."

The question, Rudacille said, is what the board can do about this situation. The county doesn't own the property, and so, isn't responsible for securing it to keep out intruders, according to county attorney Doug Napier.

However, the county has tried to rectify the situation in the past. Several years ago, before the county turned its attention to the Avtex Superfund site, Rudacille goaded a previous board into action at Stauffer. He said the county contacted the Environmental Protection Agency about the site.

"They inspected it and did a report and told us to get the DEQ (state Department of Environmental Quality) to come in and seal it off," Rudacille said. "The DEQ said they didn't have the resources and that they'd have to get EPA involved and that was the last we ever heard of it."

During the past 30 years, the property has passed through the hands of half a dozen owners. The last name of the deed filed in the Warren County Courthouse indicates the trustee as Marjorie Van Horn of Sioux City, Iowa. Van Horne said she became trustee of the property in 1989, after her husband Max, who owned the property, died. However, she said Tuesday, she does not own it now.

"I haven't had anything to do with that for years," she said.

She said the property was transferred to a Shenandoah County resident in about 1991, and that her Woodstock lawyer, Kevin Black, handled the transaction. However, Black was unavailable for comment on Tuesday.

Napier said he's only traced the land to Van Horne. However, he said, whoever owns the 14-acre site will be faced with a monumental cleanup and security problem. Any private owner of such a site, he said, would probably not have the resources to undertake such a massive project.

"Legal liability and practical liability aren't the same thing," he said. "I would think the best course of action would be for the owner to get the EPA to at least secure the site like they did at Avtex (with a high chain-link fence)."

Although securing the property is the first step, Supervisor Matthew Tederick said the county should be looking to the site's future as well.

Impressed with the essential soundness of the brick buildings, Tederick suggested the county focus some attention on reclaiming them for possible commercial or industrial office space.

.... *from page A1*

Plans to reclaim portions of Avtex for that use seem hopelessly mired at this point, he said.

"I'd say the short-term outlook for using this is better than our prospects at Avtex," he said. "Maybe we would be focusing on this."

Whatever happens to the old plant, Rudacille said it should be soon.

"It's just a matter of time until someone gets badly hurt back here," he said. "We've got to clean this up. I don't want to see somebody give their life for this place."

SENTINEL PHOTOS/STEPHEN AUSMUS

Above photo: Douglas Napier, county attorney, left, and Monte Cole of Terra Firma, watch as John Lowe uses a string and weight to check the depth of a cement holding tank at the old Stauffer Chemical plant in Bentonville. Residents say the pool, which is about 10 feet deep, is a "swimming hole" for local children and teenagers. The supervisors would like to see the plant, left photo, secured so that trespassing is no longer a problem. However, the county is having a hard time finding out who owns the land and what the owner's responsibility will be.

EPA allocates $1.4 million to clean up Stauffer site

Robert F. Kelly, on-scene coordinator for the Environmental Protection Agency, stands in one of the buildings at the former Stauffer Chemical plant in Bentonville.

By Brendan Miniter

The Environmental Protection Agency has allocated $1.4 million to clean up contamination at the former Stauffer Chemical plant in Bentonville.

Robert F. Kelly, on-scene coordinator for the agency, said the EPA identified the site for potential cleanup several months ago, but initially allocated only $200,000 for preliminary tests, the installation of filters and covering contaminated soil.

The agency will set up a command post at the site on Monday and a guard will patrol it at night, Kelly said. The removal of asbestos in insulation, roofing tiles and other products will begin soon, he said.

During the week of Dec. 13, the agency will test wells belonging to people who live within a half-mile of the plant, Kelly said. So far, only three people have asked for the free tests, he said.

The agency, which approved the cleanup money on Tuesday, is committed to cleaning the site, but the schedule depends on the company, Kelly said. Though the agency will pay for the cleanup, Stauffer may still shoulder the responsibility, he said.

If Stauffer decides to do its own cleanup, it will have to submit a plan for EPA and resident approval, and its implementation would have to be monitored by the agency, he said.

Kelly said he and other agency officials will inspect the site with company representatives on Tuesday.

Earlier this year, Kelly hired a structural engineer to determine whether it was safe for people to work in the main building because its roof is caving in, trees are growing out of the dirt floor and the smokestack is cracking.

The engineer said the building isn't in danger of falling down, so workers can work in it, Kelly said.

"Mother Nature will reclaim this place someday, but probably not for another 50 years," he said.

The EPA approved the money to clean up the site after tests showed sulfur and an unidentified sulfuric-type acid in the soil, Kelly said.

Stauffer manufactured carbon disulfide. The byproducts of the process became bright yellow clumps in soil in the north and the south end of the site, Kelly said. Though the piles of charcoal ash and sulfur used in the manufacture of the carbon disulfide are gone, more than 10,000 cubic yards of soil on the site is contaminated, he said.

Contractors hired to remove the contaminated soil had to dig 3 or 4 feet down in some areas to reach clean soil, Kelly said. The agency will fill in any holes before shutting down the project, he said.

The contaminated soil has been pushed into two piles and covered with plastic until it can be hauled away, he said. The exposed soil is sprayed with water from the cooling tower pool to suppress dust and covered with hay to prevent erosion, he said.

Kelly said agency officials prefer to dump the soil locally. It contains hazardous material, but nothing more hazardous than what is already found in municipal landfills, he said.

Kids used to swim in the cooling tower pool. There are swimming trunks and beer cans over there, Kelly said. They would empty their fish tanks in there. Sometimes you can see the fish. And they're kind of cute, too.

In brief

Daily Staff Report

Men rob pharmacy Wednesday night

Two men robbed a Front Royal pharmacy Wednesday night, getting away with an unknown quantity of a prescription narcotic, town police said.

The men entered Lester's Pharmacy at 333 South St. in the Royal Plaza Shopping Center about 8:20 p.m., said they had a weapon and demanded drugs, said Lt. E. Goldwyn said.

A weapon wasn't displayed, he said.

The men were given an unknown quantity of Roxycontin, according to [illegible] Scott Lester [illegible]

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EPA will order the cleanup of former Stauffer facility

By Brendan Miniter

The Environmental Protection Agency will order the corporate successor of Stauffer Chemical to finish cleaning the contaminated Stauffer site in Bentonville.

The order will force Rhone-Poulenc Co. Inc., which took over many of the bankrupt chemical company's assets, although not the Bentonville site, to clean up the former factory site under the agency's scrutiny or face legal action.

The agency's on-scene coordinator for cleanup, Robert F. Kelly, said Rhone-Poulenc is willing to cooperate with the cleanup. Stauffer Management Co. will assist in the cleanup on behalf of Rhone-Poulenc, he said.

Stauffer Management is a separate company from Stauffer Chemical, which ran the factory from 1945 until the mid-1960s.

On-scene Coordinator for Enforcement Glen S. Lapley said the administrative order will require Rhone-Poulenc to accept responsibility for cleaning the site.

The order will specify what must be cleaned and will set up a timetable for the cleanup. It also will set the cleanliness standards the site must meet for the job to be considered finished, Lapley said.

He said he expects Rhone-Poulenc to accept the administrative order. If it doesn't, the company will be subject to a lawsuit that could force it to clean the site or face fines for leaving the site polluted.

pany for violating the administrative order, he said.

Lapley said the order will be issued before the end of January.

Once it accepts the order, Rhone-Poulenc must abide by it, he said. If company doesn't meet the given schedule or fails to meet the cleanliness standards, it will be subject to the same fines or lawsuits it would be for not accepting the order in the first place, he said.

Kelly said the agency will continue working on the site until the company agrees to the order. The cleanup crew will take three days off for Christmas and three days off for New Year's, he said. Someone will be at the site 24 hours a day to maintain security and make sure the piles of contaminated dirt stay covered, he said.

After Rhone-Poulenc accepts the order, he will leave and Lapley will monitor the cleanup, Kelly said.

He was given $1.6 million to clean the site if no one accepted responsibility for the cleanup, he said. Now that it appears that Rhone-Poulenc will clean the site, the federal government will save its money, he said.

About 10,000 cubic feet of contaminated dirt already have been dug up and left in covered piles, waiting to be hauled to a landfill, Kelly said.

A sample of the soil was sent away to be tested, the results of which should reach him in Philadelphia over the holidays, he said. Where the dirt ultimately ends up depends on the results of those tests, he said. It could go to a private landfill in

What's going on

Doc Smith basket donations

Donations of food, toys or money for Doc Smith Christmas bask accepted today from 2 to 4 p.m.
The date was incorrect in Thursday's issue.

Williams CME

Williams CME Church will present a Christmas program follow potluck dinner on Saturday at 6 p.m.
Further information is available by calling 622-6462.

Front Royal Methodist

Front Royal United Methodist Church will present a Christmas cant Sunday at 5:30 p.m.
Special music will be presented by the adult choir and Carillon Han Choir.

Front Royal Baptist

Front Royal Baptist Temple will present a Christmas program on Sun at 6 p.m.

Asbury Methodist

Asbury United Methodist Church will present a Christmas program fe turing the Fishnet Ministries Children's Choir on Sunday at 7 p.m.
A reception will follow.

Flint Hill Methodist

Flint Hill United Methodist Church will present a Christmas program on Sunday at 7:30 p.m.

Front Royal Presbyterian

Front Royal Presbyterian Church will present a concert on Sunday at 4 p.m.
A reception will follow. A nursery will be provided.
Further information is available by calling 636-3751.

Senior Center activities

The Warren County Senior Center has scheduled the following activities:
Monday: 9-11 a.m., Social Security representative. Tuesday: 9:30 a.m., haircuts; 10:30 a.m., program on Concern Hotline by Dee Archambault; 12:30 p.m., music with Shrum, Rogers and Yates.
Wednesday: 10:30 a.m., Christmas party; 11 a.m., harmonica music by the Valley Harpers.

Avtex Retirees

The Avtex Retirees Club will hold a Christmas covered-dish dinner on Monday at 1 p.m. at the Union Hall.
The meat, bread and beverages will be provided. Those attending should

Front Royal

Northern Virginia Daily

EPA will watch, but company will do c

Stauffer's successor must clean up chemical plant site in Bentonville

By Brendan Miniter

The Environmental Protection Agency is turning over cleanup efforts of the Stauffer Chemical plant site in Bentonville to Rhone-Poulence Ag Co. Inc., Stauffer's corporate successor.

Although a timetable hasn't been set, the cleanup will be monitored by the agency's Philadelphia office.

The agency sent a 22-page administrative consent order this week to Stauffer Management Co., an agent for the German and French chemical company Rhone-Poulence, requiring the company to take over cleanup of the site.

The agency's on-scene coordinator for cleanup, Robert F. Kelly, said Wednesday that the EPA was able to stabilize the site after spending $150,000 out of the $1.6 million budgeted for the project.

The company will have to reimburse the agency for the money spent, he said.

His crew will remove its equipment and one of the two trailers on the site by Friday, he said. The remaining trailer will be left for guards to use until Stauffer Management starts cleaning up the site for Rhone-Poulence on Feb. 1, he said.

Last month the EPA announced that Rhone-Poulence would be ordered to clean up the Warren County site. Once the company agreed to take over, the EPA halted the cleanup until the paperwork was completed to allow the company to begin its work, Kelly said.

This week's order requiring the company to clean up the site says the company must respond to the order within five days of receiving it and within 10 days give the agency a plan for conducting the cleanup.

Once the plan is approved by both sides, the company has to begin work at the site within seven days, the order says.

During the cleanup, the company has to file a report with the agency detailing what has been accomplished, problems encountered and what actions the company plans for each two-week period, it says.

If the company doesn't comply with the cleanup plan, it can be fined up to $5,000 a day for each violation, it says. If the company refuses to clean up the site to the standard the agency requires, it will be subject to fines, it says.

Kelly said the
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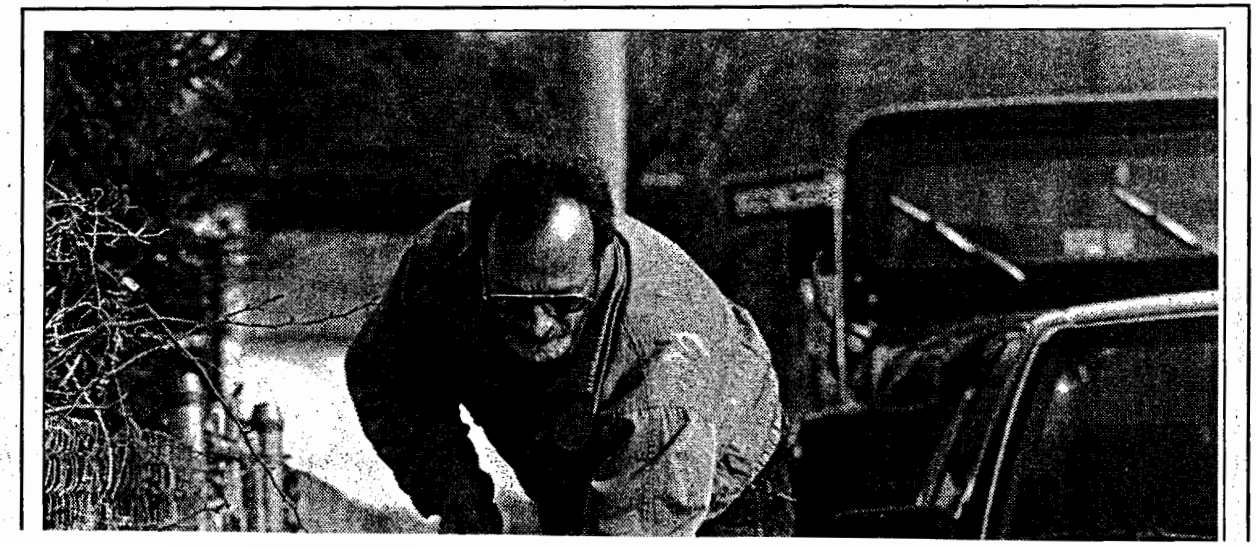
Lacy says county's utility study is flawed

By Brendan Miniter

A study claims Warren County could create a utility system and provide water and sewer service to



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By Diane Hart

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Front Royal

Thursday, January 14, 1999

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If the company doesn't comply with the cleanup plan, it can be fined up to $5,000 a day for each violation, it says. If the company refuses to clean up the site to the standard the agency requires, it will be subject to fines, it says.

Kelly said the site will be cleaned up regardless. If necessary, the EPA will send him back to finish the work, he said.

The agency identified the site for cleanup in October and work began in November, he said. The agency placed about 10,000 cubic yards of contaminated soil in two piles on the site and covered them with plastic, he said.

After the EPA leaves, Rhone-Poulence will have to remove the two soil piles and grade the land, he said.

Contaminants found in the soil include carbon disulfide, cyanide, chromium, arsenic, lead and coal ash. Thesoil is about as hazardous as the soil in most landfills, so it could be deposited in a local landfill, Kelly said last month.

The agency also tested about 25 local wells within a half-mile of the site last month before halting operations. Results from those tests will be released after they come back from the lab next month, Kelly said.

Kelly said the agency will leave facts sheets about the cleanup at the South Warren Fire Department and several other locations.

According to the fact sheet, Stauffer Chemical manufactured carbon disulfide at the facility from 1945 until the early 1960s. The site includes a manufacturing building and two primary areas of waste disposal on about 26 acres.

Officials say it's OK for Winchester to take more water

By Diane Hartson

"The volume
[being drawn by

ORIGINAL

APPENDIX D

PHOTO DOCUMENTATION

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG

ROLL #: 1

PHOTOGRAPH #: 3

DATE: 10/28/98

TIME: 1030

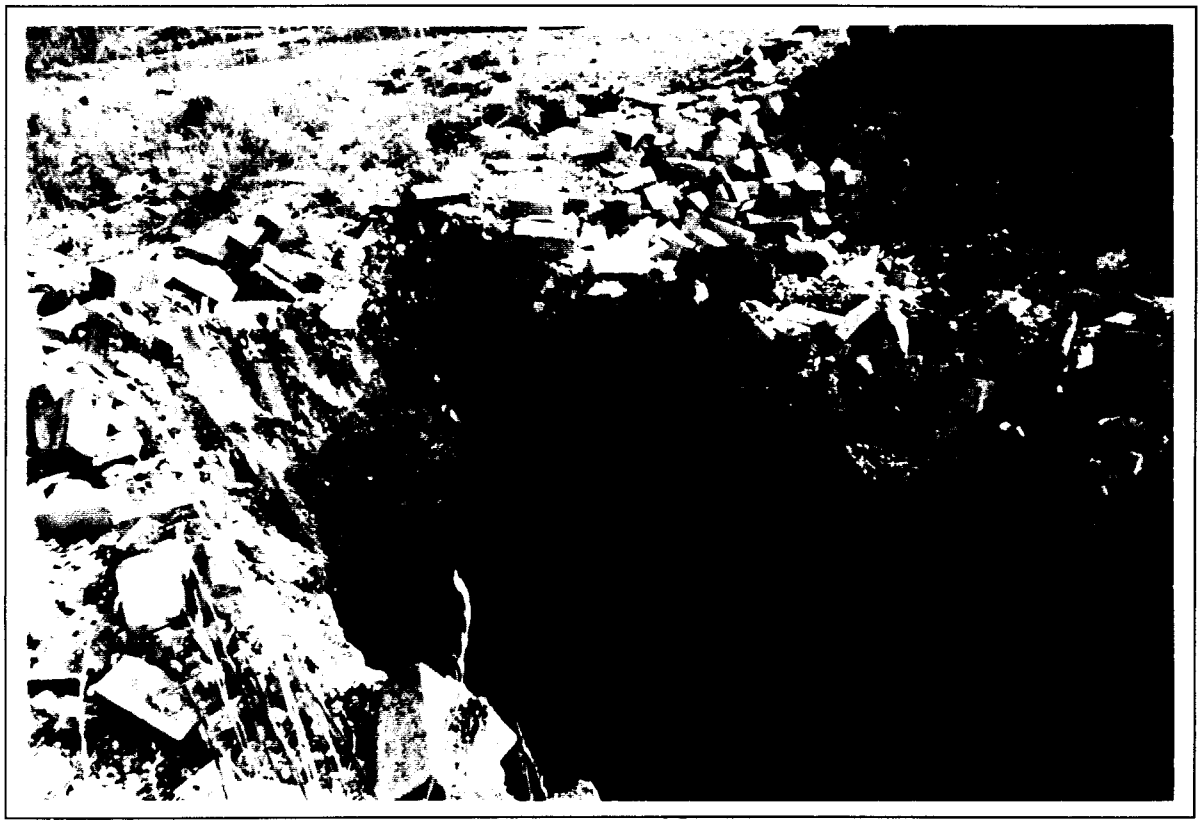
PHOTOGRAPHER: Kevin Scott, Tetra Tech EM, Inc.

ORIENTATION: Facing northeast

DESCRIPTION: Photograph of excavator mobilized to the site to excavate test trenches and neutralization pond.

ORIGINAL

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG



ROLL #: 1

PHOTOGRAPH #: 5

DATE: 10/28/98

TIME: 1030

PHOTOGRAPHER: Kevin Scott, Tetra Tech EM, Inc.

ORIENTATION: Facing east

DESCRIPTION: Photograph showing the side walls of test trench excavated in the north brick dump area. Fire brick from the boiler and retorts are visible on the surface of the brick dump and ash and sulfur layers are visible along the side walls of the excavation.

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG

ROLL #: 1

PHOTOGRAPH #: 9

DATE: 10/28/98

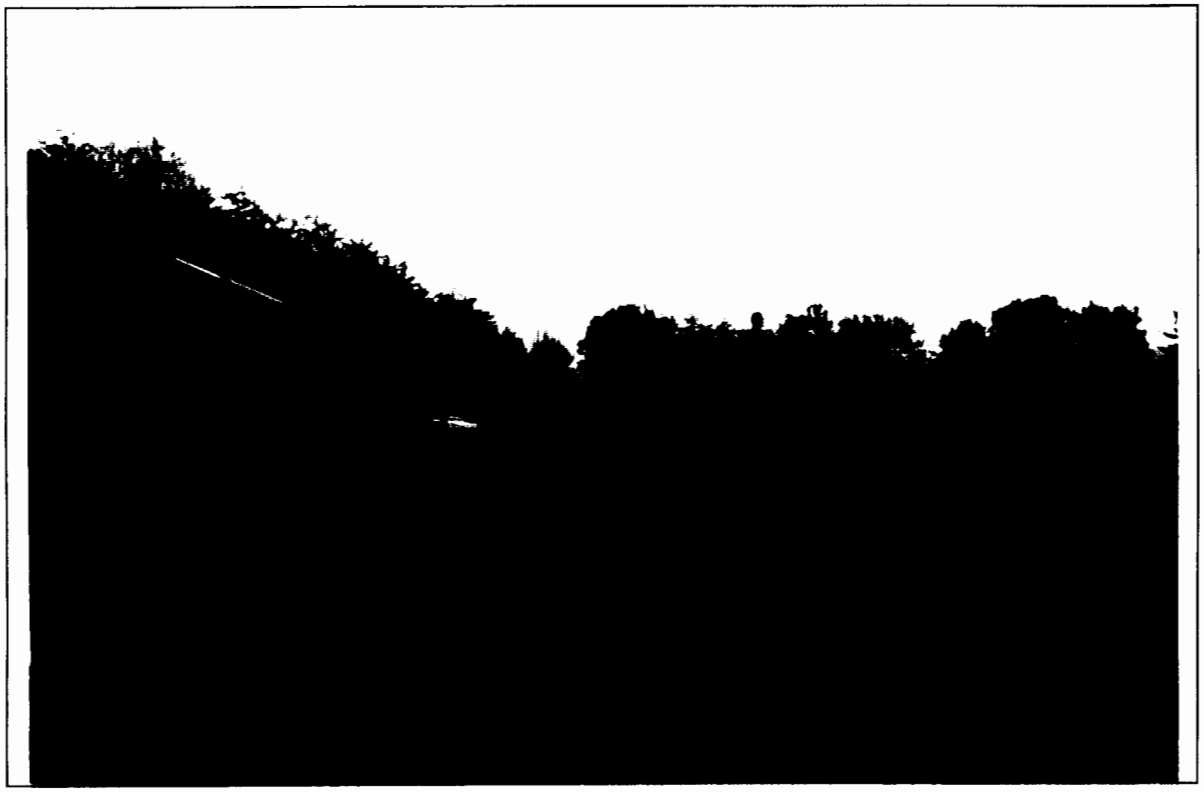
TIME: 1310

PHOTOGRAPHER: Kevin Scott, Tetra Tech EM, Inc.

ORIENTATION: Facing east

DESCRIPTION: Photograph showing the east side of the neutralization pond. ERCS equipment operator excavates channel through berm wall which will allow storm-water run-off to enter neutralization pond.

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG



ROLL #: 1

PHOTOGRAPH #: 11

DATE: 10/28/98

TIME: 1310

PHOTOGRAPHER: Kevin Scott, Tetra Tech EM, Inc.

ORIENTATION: Facing south, southeast

DESCRIPTION: Photograph showing OSC Mike Towle and ERCS personnel discussing construction details of neutralization pond.

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG

ROLL #: 1

PHOTOGRAPH #: 17

DATE: 10/30/98

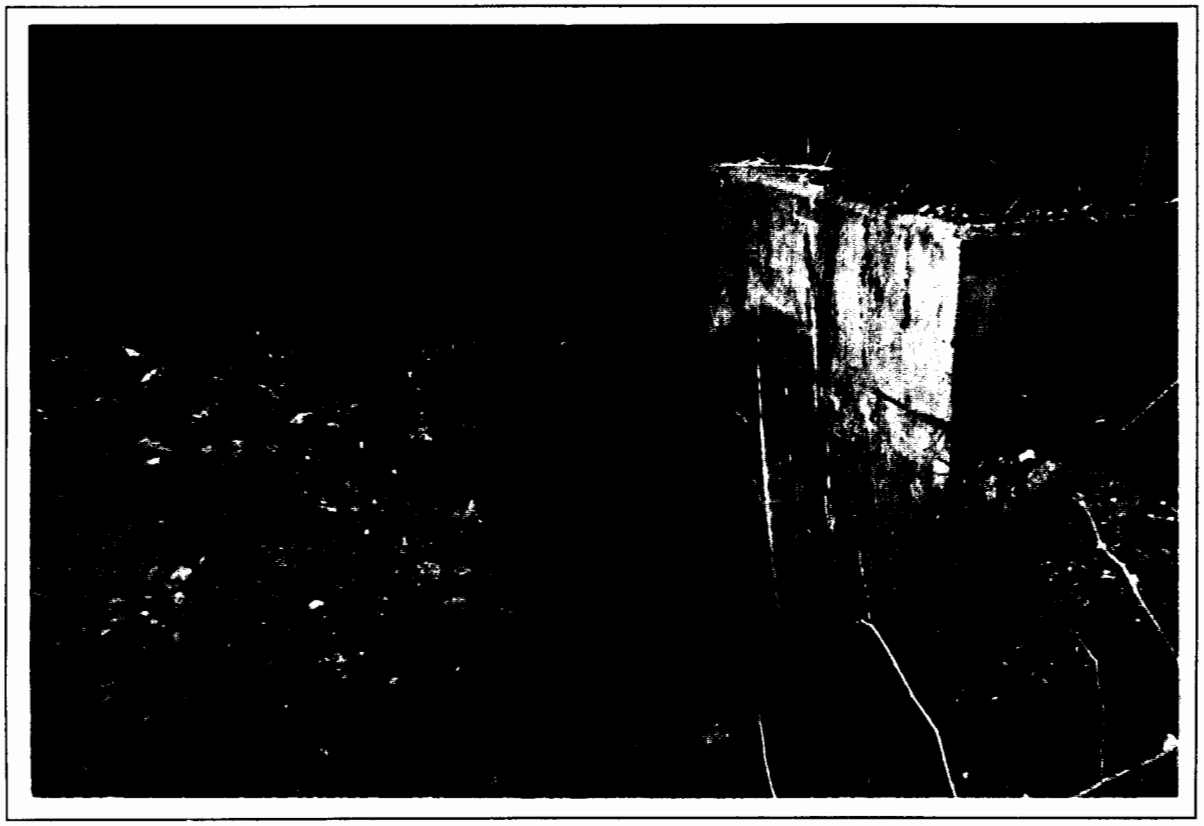
TIME: 1230

PHOTOGRAPHER: Jarrett Laraway, Tetra Tech EM, Inc.

ORIENTATION: East

DESCRIPTION: Photograph showing limestone-filled neutralization pond.

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG



ROLL #:2

PHOTOGRAPH #:2

DATE: 11/3/99

TIME: 1200

PHOTOGRAPHER: Sam Yount, Tetra Tech EM, Inc.

ORIENTATION: Facing west

DESCRIPTION: Test trench excavated along outside, southern wall of the CS2 pit.

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG

ROLL #:2

PHOTOGRAPH #:3

DATE: 11/3/99

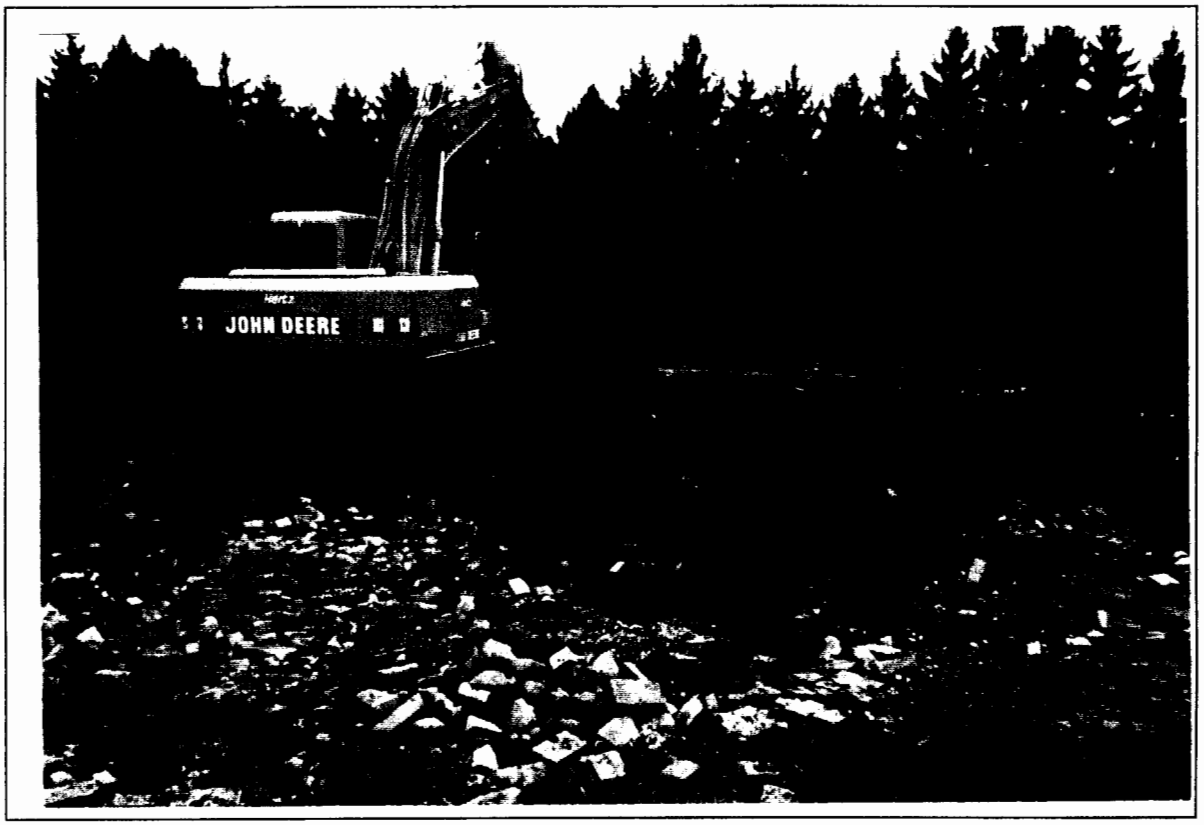
TIME: 1300

PHOTOGRAPHER: Sam Yount, Tetra Tech EM, Inc.

ORIENTATION: Facing northeast

DESCRIPTION: Photograph showing test trenching activities along the outside wall of the CS2 pit at the northwest end of the pit.

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG



ROLL #:2

PHOTOGRAPH # 4

DATE: 11/09/98

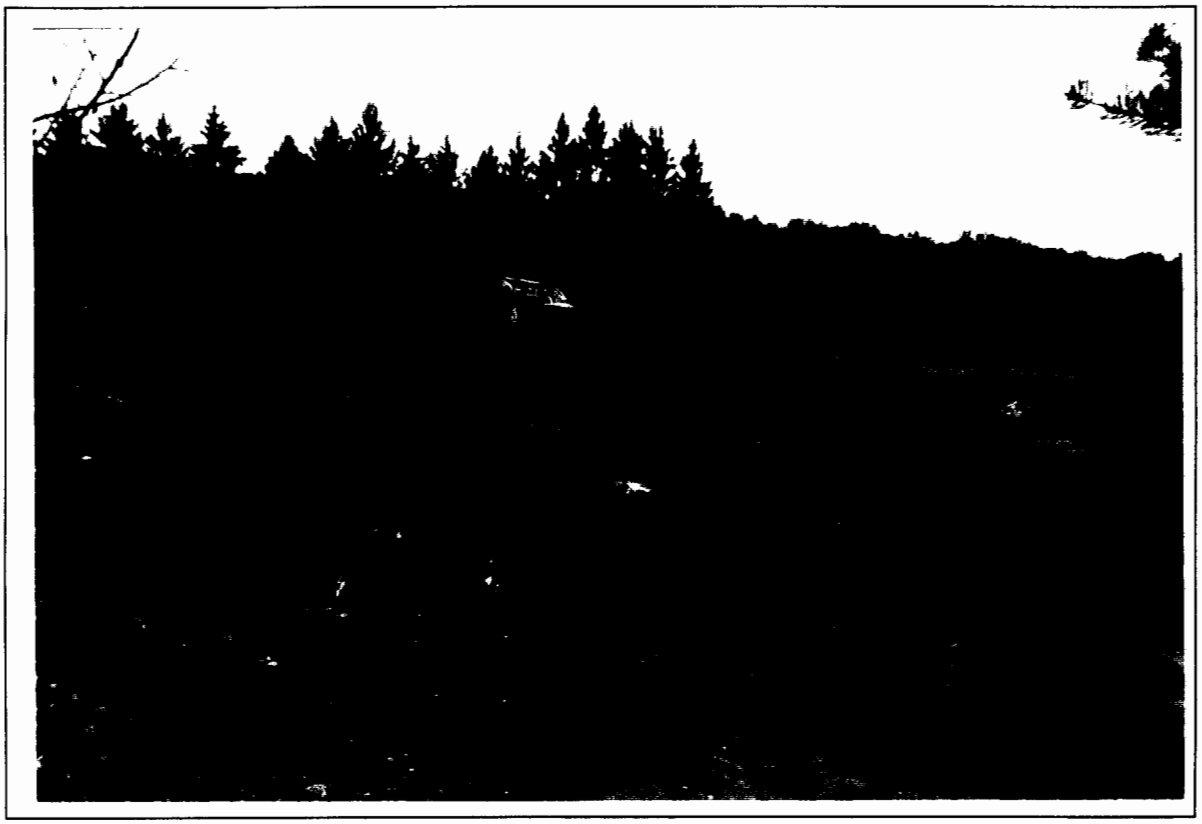
TIME: 0800

PHOTOGRAPHER: Sam Yount, Tetra Tech EM, Inc.

ORIENTATION: Facing west

DESCRIPTION: Photograph showing initial stock piling of waste material in north brink dump area.

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG



ROLL #: 2

PHOTOGRAPH #: 5

DATE: 11/9/98

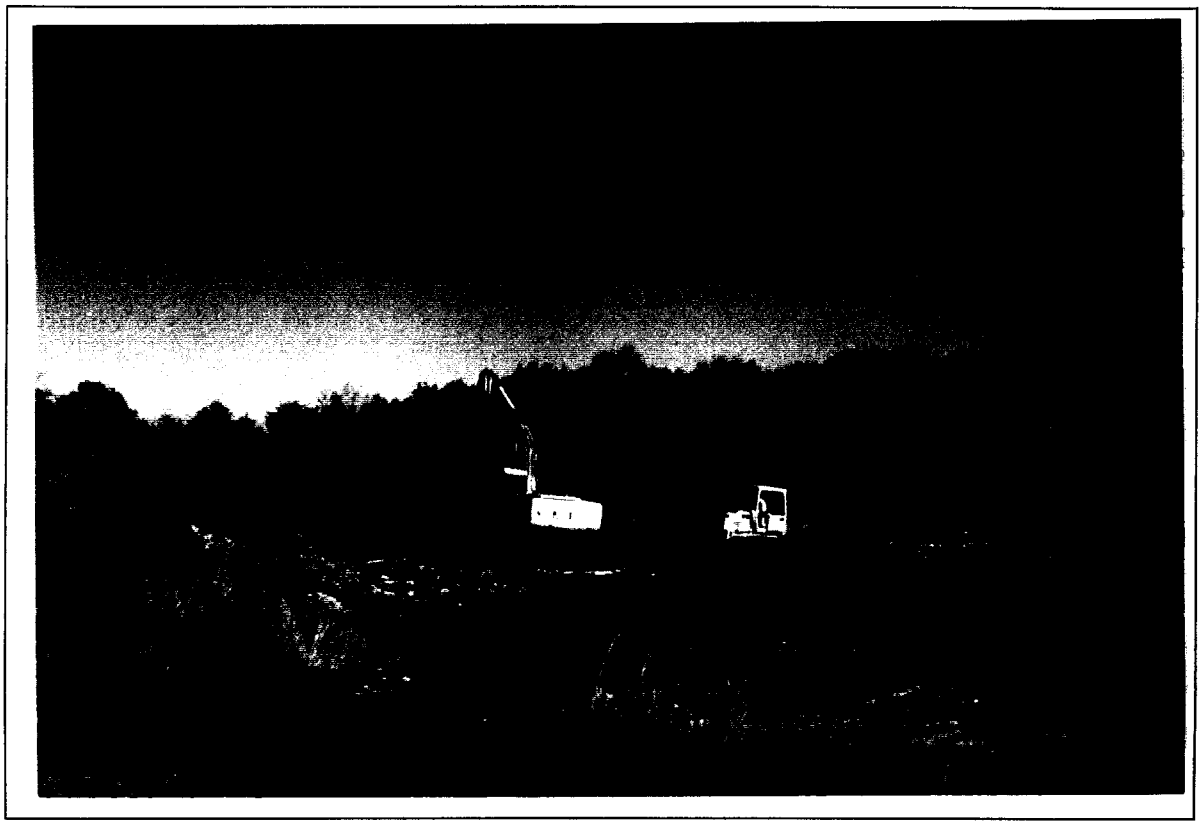
TIME: 1100

PHOTOGRAPHER: Sam Yount, Tetra Tech EM, Inc.

ORIENTATION: Facing north, northwest

DESCRIPTION: Photograph showing initial stock piling of waste material in north brink dump area.

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG



ROLL #: 2

PHOTOGRAPH #:8

DATE: 11/10/98

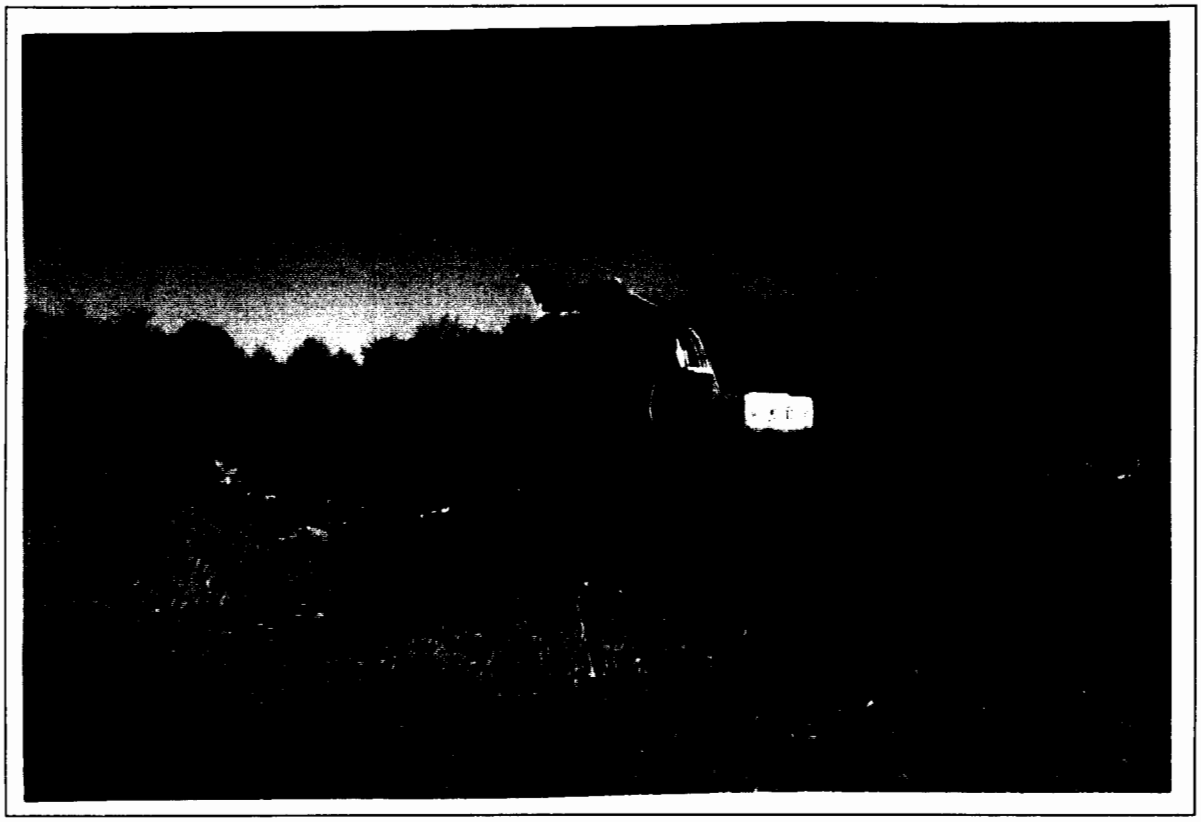
TIME: 1500

PHOTOGRAPHER: Sam Yount, Tetra Tech EM, Inc.

ORIENTATION: Facing northeast

DESCRIPTION: Photograph showing stock piling of waste material in north brink dump area using dozer and excavator.

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG



ROLL #: 2

PHOTOGRAPH #: 10

DATE: 11/11/98

TIME: 1000

PHOTOGRAPHER: Sam Yount, Tetra Tech EM, Inc.

ORIENTATION: Facing north

DESCRIPTION: Photograph showing stock piling of waste material in north brink dump area.

ORIGINAL

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG

ROLL #: 3

PHOTOGRAPH #: 8

DATE: 12/15/98

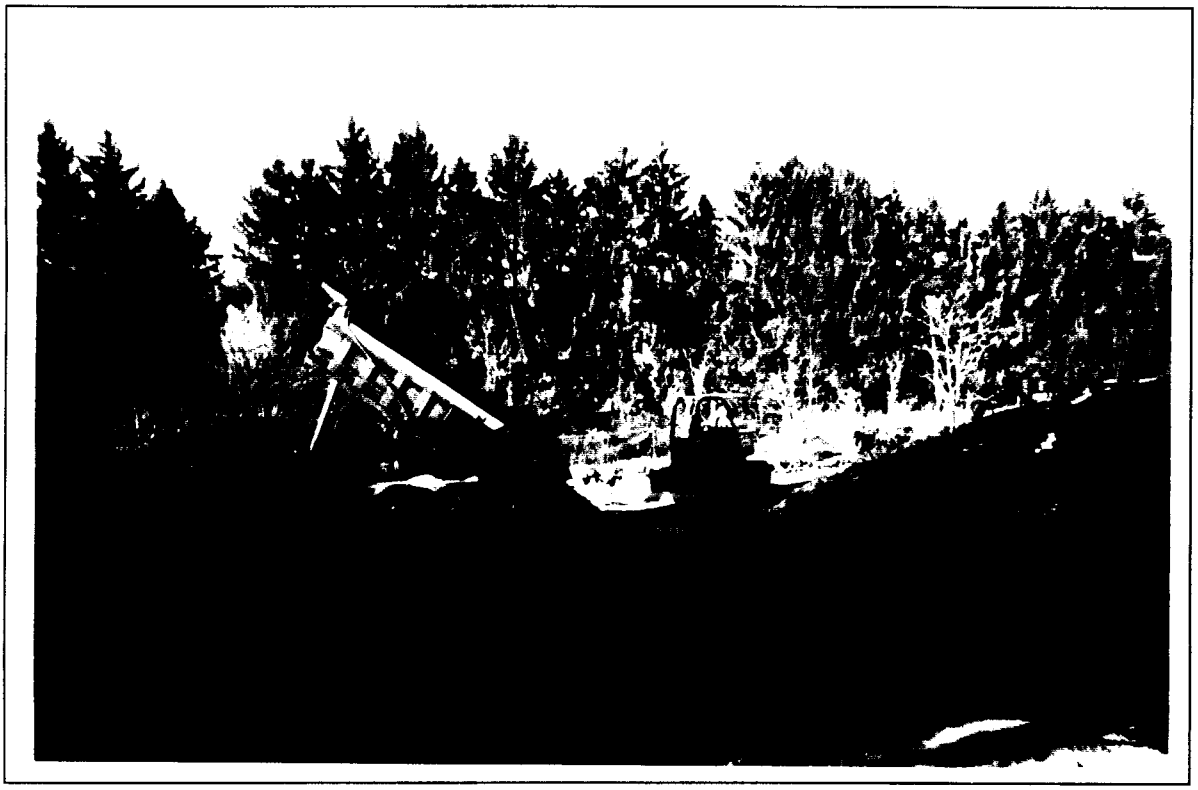
PHOTOGRAPHER: Chris Evans, Tetra Tech EM, Inc.

ORIENTATION: Facing north

DESCRIPTION: VIEW OF LINER APPLICATION BELOW ROADAT NORTH DUMP SITE

ORIGINAL

STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA
US EPA REGION III REMOVAL ACTION PHOTO LOG



ROLL #: 3

PHOTOGRAPH #: 9

DATE: 12/15/98

PHOTOGRAPHER: Chris Evans, Tetra Tech EM, Inc.

ORIENTATION: Facing west

DESCRIPTION: TRUCK UNLOADING STONE AT NORTH DUMP SITE

CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CS_2	Carbon Disulfide
EOSC	Enforcement On-Scene Coordinator
EPA	U.S. Environmental Protection Agency
ERCS	Emergency Response Cleanup Services
FAS	Field Administrative Specialist
H_2S	Hydrogen Sulfide
HNaS	Sodium Hydrosulfide
LHP	Labor Hour Pool
NCP	National Contingency Plan
OPA	Office of Public Affairs
OSC	On-Scene Coordinator
PCB	Polychlorinated Biphenyl
PPE	personal protective equipment
ppm	parts per million
PRP	Potentially Responsible Party
RM	Response Manager
SARA	Superfund Amendments and Reauthorization
SATA	Site Assessment and Technical Assistance
TAL	Target Analyte List
TCL	Target Compound List
VA DEQ	Virginia Department of Environmental Quality

ORIGINAL

An EPA sign at the Stauffer site warns people to keep away from the hazardous chemicals present there. EPA us now cleaning up the area.

SENTINEL PHOTO/ STEPHEN AUSMUS

$1.4 mil allotted for Stauffer cleanup

By TERESA BRUMBACK The Warren Sentinel

The United States. Environmental Protection Agency pumped in an additional $1.4 million last Tuesday for cleanup of the defunct Stauffer Chemical plant in Bentonville. The amount is in addition to the $200,000 EPA allocated in October to assess the extent, type and degree of contamination.

And, unless there are some nasty surprises along the way, cleanup at Stauffer Chemical is projected to be fast and relatively cheap for a Superfund site.

Still, the types and extent of contamination are much of a mystery for now. "We don't know what's in there," said Robert Kelly, the U.S. Environmental Protection Agency's onscene coordinator at the site. "We're like shooting in the dark here, We haven't been able to find plans of the building. We're taking it one step at a time."

If all goes as expected, the Stauffer site could be cleaned up in four months, Kelly said.

Cleanup at many Superfund sites, such as at Avtex, can drag for years. But others, may take as little as two weeks, said Kelly.

Work is going on now to assess the type, extent, and breadth of contamination before emergency removal efforts begin, he said.

Soil sampling is underway to figure out what hazardous chemicals are present.

Water at selected residential wells in a half-mile radius of the site will be tested for contamination over the next few weeks. Anyone living near the site who wants to have their water tested is asked to contact EPA at its onsite office at 636-1069 or 636-1885. Results are confidential, officials said. Seven wells were tested in 1996 and none were found to be contaminated, he said.

The Stauffer site, with its skeleton of wooden and brick buildings and smokestack, is behind the Foodway market in Bentonville. The concrete floor inside the main building was dug up, exposing the ground underneath.

"There's trees growing through it and everything else."

Drums of waste and lagoons, common at other hazardous waste and Superfund sites, haven't been found here. But officials did find two underground storage tanks. "They seem full, but we don't know if it's product or water," Kelly said.

Friable asbestos was found coating the bare ground inside the building, he said.

Around the building, pH tests of soil have found 10,000 yards of soil to be contaminated with sulfur-based acids, Kelly said. Acids are a corrosive waste and can cause bums.

"we neutralized the acid release by spreading lime down on the ground," he said.

An old water holding tank at the site is used by neighborhood children as a swimming pool when it fills up with water.

"The water is good, as far as we know. We tested it, but we don't know. The pond is 15 feet deep. That's one of our assessments to do at this time, a sample of what's at the bottom."

Aside from that, everything else about the site is pretty much a mystery.

"We don't know what they did in that (main) building, to tell you the truth," Kelly said. "We have no plans, maps or nothing of this place. We couldn't find no back data on it."

Some people who attended a recent community meeting about the cleanup of the site were helpful in providing some information, he said, but Kelly urged anyone with other information that might be useful in understanding the plant's operations or layout, to call him.

A preliminary engineering investigation shows that the shell of the building remaining onsite is structurally sound.

The Stauffer plant manufactured carbon disulfide through blending charcoal and sulfur. The compound was a necessary part of the rayon manufacturing process at Avtex, and was shipped by rail to the Front Royal plant.

Carbon disulfide is extremely flammable at very low temperatures, and had to be shipped in water-filled cargo tanks to prevent explosions, From there, the carbon disulfide was shipped by rail to the Avtex site in Front Royal, where it was used in the making of viscose for high-tenacity rayon, officials said.

Since the plant shut down in 1958, the site has been stagnant. Stauffer Chemical of Delaware has been identified as a responsible party, and will

be asked to compensate EPA for cleanup costs, Kelly said.

Kelly said, as on-scene coordinator, he oversees the cleanup by EPA contractors. He said unlike some other EPA onscene coordinators, he doesn't have a college degree but has worked for EPA two years. He car-ties with him 15 years experience removing hazardous waste from aircraft carriers and other defense transportation at the Philadelphia Naval Shipyard.

"I'm legitimate," he said.

A few years ago, an on-scene coordinator at Avtex left after officials learned he had made up some of his credentials.

Mike Towle is Avtex's current on-scene coordinator.

ARTICLE DATE : December 10, 1998

ORIGINAL

SPECIAL BULLETIN A
STAUFFER CHEMICAL COMPANY SITE
BENTONVILLE, WARREN COUNTY, VIRGINIA

DATE: 15 OCTOBER 1998

FROM: ROBERT F. KELLY, ON-SCENE COORDINATOR
REMOVAL RESPONSE SECTION (3HS31)

TO: REGIONAL RESPONSE CENTER

SUBJECT: NOTIFICATION OF $200,000 CERCLA REMOVAL ACTION

I. BACKGROUND

STAUFFER CHEMICAL COMPANY OWNED AND OPERATED A CARBON DISULFIDE MANUFACTURING PLANT AT THE SITE FROM 1945 UNTIL ITS CLOSURE IN 1957. THIS SITE IS LOCATED IN BENTONVILLE, WARRREN COUNTY, VIRGINIA; THE SITE IS SITUATED AT THE END OF BUBB LAN WHICH IS APPROXIMATELY 0.2 MILES SOUTHEAST OF THE INTERSECTION OF U.S. ROUTE 340 AND STATE ROUTE 613, OFF OF ROUTE 613. LAND ADJACENT TO THE SITE IS PRIMARILY RESIDENTIAL, WITH HOMES IN EACH DIRECTION, BUT ALSO INCLUDES A GAS STATION AND A NORFOLK AND WESTERN RIGHT-OF-WAY TO THE NORTH. THE AREA SURROUNDING THE SITE IS MOSTLY AGRICULTURAL AND RESIDENTIAL.

THE STAUFFER CHEMICAL PLANT COVERS A TOTAL AREA OF APPROXIMATELY 112 ACRES. THIRTEEN ACRES, ENCLOSED WITHIN A CYCLONE FENCE, MAKE UP THE PRODUCTION AND STORAGE AREA. WITHIN THE 13 ACRES, A MAIN BUILDING AREA EXISTS, WHICH EXHIBITS MAJOR DETERIORATION AND DAMAGE POSSIBLY CAUSED BY FIRE. SEVERAL TANKS AND VESSELS ARE LOCATED WITHIN THE BUILDING. A CONCRETE SUMP OF UNKNOWN USE IS LOCATED ON THE WESTERN SIDE OF THE MAIN BUILDING. TWO CONCRETE CARBON DISULFIDE PITS ARE LOCATED IN FRONT OF THE BUILDING, ADJACENT TO THE RAILROAD TRACKS. A COOLING TOWER IS LOCATED BETWEEN THE CONCRETE PITS AND THE CYCLONE FENCE. WAREHOUSES ARE LOCATED TO THE NORTH AND SOUTH OF THE MAIN BUILDING. A CONCRETE PAD IS FOUND TO THE EAST OF THE NORTHERNMOST WAREHOUSE.

A LARGE, BARREN AREA, VOID OF VEGETATION, IS LOCATED IN THE SOUTHERN CORNER OF THE FENCED-IN AREA. THIS BARREN AREA IS APPROXIMATELY 0.5 ACRES IN SIZE, AND IS APPARENTLY AN ASH/SULFUR DISPOSAL AREA. A LARGER ASH/SULFUR DISPOSAL AREA, APPROXIMATELY 2 ACRES IN SIZE, IS LOCATED IN THE VICINITY OF A BRICK DUMP, TO THE NORTH OF THE SITE. THE BRICKS ARE FIRE BRICKS, AND ARE POSSIBLY A SOURCE OF HEAVY METAL CONTAMINATION ON SITE.

- NEUTRALIZE ACID RELEASE FROM THE SITE.

FUTURE ACTIONS AT THIS SITE WILL BE DETERMINED WITH THE BENEFIT OF ADDITIONAL INFORMATION AND EVALUATION OF THE SUCCESS OF NEUTRALIZING MEASURES. FUTURE ACTIONS (PHASE II) MAY INCLUDE THE FOLLOWING:

- PROVIDE SITE SECURITY TO PREVENT UNAUTHORIZED ACCESS TO HAZARDOUS SUBSTANCES
- IMPROVE ACCESS (E.G. REMOVE VEGETATION, INSTALL TEMPORARY ROADWAY) TO FACILITATE REMOVAL OF HAZARDOUS SUBSTANCES.
- REMOVE HAZARDOUS SUBSTANCES FROM THE SITE.

ESTIMATED COSTS (PHASE I)

ERCS	$150,000
SATA	25,000
EPA DIRECT	10,000
EPA INDIRECT	10,000
CONTINGENCY	5,000
TOTAL	$200,000

IV. OSC ACTIONS

THE OSC HAS DETERMINED THAT AN UNCONTROLLED RELEASE OF HAZARDOUS SUBSTANCES (CORROSIVE ACIDS) AT THE STAUFFER CHEMICAL COMPANY SITE POSES A THREAT TO HUMAN HEALTH, WELFARE, OR THE ENVIRONMENT AND MEETS THE CRITERIA AT SECTION 300.415 OF THE NCP FOR AN EMERGENCY REMOVAL ACTION. IN RESPONSE TO THIS THREAT, THE OSC HAS ACTIVATED SUPERFUND IN THE AMOUNT OF 200,000 TO INITIATE STABILIZATION ACTIVITIES.

_____

ROBERT F. KELLY, OSC
US EPA REGION III
PHILADELPHIA, PA

ORGANISMS, INCLUDING FISH SPECIES, IN FLINT RUN CREEK.

300.415 (B) (2) (v) "WEATHER CONDITIONS THAT MAY CAUSE HAZARDOUS SUBSTANCES OR POLLUTANTS OR CONTAMINANTS TO MIGRATE OR BE RELEASED"

DURING PERIODS OF RAIN, THE ACID WILL BECOME A LEACHATE AND THEREBY CREATE A RUNOFF INTO THE FLINT RUN CREEK. THIS WILL CAUSE THE HAZARDOUS SUBSTANCES TO MIGRATE OFF-SITE.

300.415 (b) (2) (vii) "THE AVAILABILITY OF OTHER APPROPRIATE FEDERAL OR STATE RESPONSE MECHANISMS TO RESPOND TO THE RELEASE"

VADEQ REQUESTED THAT THE EPA PERFORM THIS ASSESSMENT AND CONDUCTED THIS ASSESSMENT ALONG WITH THEM. VADEQ HAS REQUESTED THAT EPA TAKE THE LEAD ON ACTIVITIES TO MINIMIZE THREATS POSED BY THIS SITE. THE OSC WILL CONTINUE TO COORDINATE RESPONSE ACTIVITIES WITH VADEQ.

III. PROPOSED ACTIONS AND COST

THE OSC HAS IDENTIFIED AN IMMEDIATE AND SIGNIFICANT THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT POSED BY CONDITIONS AT THE SITE AS EXPRESSED ABOVE. HAZARDOUS SUBSTANCES (CORROSIVE ACIDS) HAVE BEEN IDENTIFIED AT THE SITE. A REMOVAL ACTION IS WARRANTED BASED UPON THE CRITERIA OF SECTION 300.415 OF THE NCP DUE TO THE UNCONTROLLED RELEASE OF HAZARDOUS SUBSTANCES INTO THE ENVIRONMENT. ACTUAL OR THREATENED RELEASED OF HAZARDOUS SUBSTANCES FROM THIS SITE, IF NOT ADDRESSED BY IMPLEMENTING RESPONSE ACTIONS IDENTIFIED HEREIN, MAY PRESENT AN IMMINENT AND SUBSTANTIAL ENDANGERMENT TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT.

TODAY, PURSUANT TO DELEGATION OF AUTHORITY 14-1-A, THE OSC HAS ACTIVATED $200,000 OF CERCLA FUNDS TO INITIATE STABILIZATION OF HAZARDOUS SUBSTANCES AT THE SITE. THE ACTIONS PROPOSED HEREIN ARE INTENDED TO MITIGATE THREATS TO HUMAN HEALTH AND THE ENVIRONMENT EVIDENT AT THIS TIME, I. E. OBTAINING TEMPORARY FENCING TO RESTRICT ACCESS. THE PROPOSED ACTIONS (PHASE I) ARE AS FOLLOWS:

- MOBILIZE/DEMOBILIZE PERSONNEL, SUPPLIES AND EQUIPMENT TO THE SITE WHICH ARE NECESSARY TO COMPLETE ACTIONS.

- RESTRICT ACCESS TO HAZARDOUS SUBSTANCES AT THE SITE.

AN AREA OF POND WATER IS LOCATED OUTSIDE THE FENCED AREA TO THE NORTH. THE LIQUID IN THE POND EXHIBITED VERY LOW pH (e.g. <2)

A REMOVAL ASSESSMENT WAS CONDUCTED BY EPA IN APRIL 1998 AT THE REQUEST OF VADEQ. AT THAT TIME, SOIL, SEDIMENT AND AQUEOUS SAMPLES WERE COLLECTED. ANALYTICAL RESULTS REVEALED THAT SAMPLES CONTAINED TCL ORGANICS, TAL INORGANICS, CORROSIVITY, AND REACTIVE SULFIDE. ALSO, FIELD TESTING INDICATED VERY LOW pH LEVELS IN RUNOFF WATER (e.g. <2).

A REASSESSMENT OF THESE AREAS WAS CONDUCTED ON 14 OCTOBER 1998 USING A pH METER. THIS ASSESSMENT REVEALED A pH LEVEL OF LESS THAN 2.0 IN WASTE MATERIALS IN THE DISPOSAL AREA AND SUPPORTS EPA'S APRIL 1998 ASSESSMENT INFORMATION. ALTHOUGH CURRENT DROUGHT CONDITIONS HAVE MINIMIZED THE AMOUNT OF ACIDIC RUNOFF, WATER PASSING THROUGH WASTE MATERIALS AT THE SITE RESULT IN LIQUID RUNOFF EXHIBITING A pH OF 1.5. THUS, SITE RUNOFF IS A CORROSIVE LIQUID PURSUANT TO RCRA (AND A CERCLA HAZARDOUS SUBSTANCE).

II. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

SECTION 300.415 OF THE NCP LIST THE FACTS TO BE CONSIDERED IN DETERMINING THE APPROPRIATENESS OF A REMOVAL ACTION. AT THIS TIME, PARAGRAPHS (B) (2) (I), (ii), (v), and (vii) OF SECTION 300.415 APPLY AS FOLLOWS TO THE CONDITIONS AT THE SITE.

300.415 (B) (2) (I) "ACTUAL OR POTENTIAL EXPOSURE TO NEARBY HUMAN POPULATIONS, ANIMALS OR THE FOOD CHAIN FROM HAZARDOUS SUBSTANCES OR POLLUTANTS OR CONTAMINANTS"

THE SITE IS LOCATED IN A RURAL RESIDENTIAL/AGRICULTURAL AREA. ACCESS TO THE SITE AND HAZARDOUS SUBSTANCES AT THE SITE IS UNRESTRICTED. THERE IS EVIDENCE OF HUMAN AND ANIMAL (e.g. ACID AND CORROSIVE MATERIALS) TRESPASSING THROUGH THE AREAS OF CONCERN.

300.415 (B) (2) (ii) "ACTUAL OR POTENTIAL CONTAMINATION OF DRINKING WATER SUPPLIES OR SENSITIVE ECOSYSTEMS"

DURING TIMES OF POND OVERFLOW, ACID RUNOFF FROM THE SITE ENTERS FLINT RUN CREEK. FLINT RUN CREEK FLOWS IN A NORTHEASTWARDLY DIRECTION FOR 5 TO 6 MILES BEFORE IT REACHES THE SOUTH FORK SHENANDOAH RIVER. PREVIOUS DATA COLLECTED BY VA SWCB INDICATED THAT RUNOFF FROM THE SITE MAY BE IMPAIRING DIVERSITY AND DENSITY OF

ORIGINAL

POLREP 02
Stauffer Chemical Site
Rtes. 340 and 613
Bentonville, Warren Co., VA

ATTN: RRC, C. Kleeman

I. Situation (as of 23 Oct 98)
Event: Removal Action

A. Removal activities at this former carbon disulfide manufacturing facility are focused on restricting access to hazardous substances and preventing an uncontrolled release of hazardous substances into Flint Run Creek. Waste disposal areas at the Site are located outside of fenced areas. Runoff from the waste areas is characterized by a pH which is less than 2.0 indicative of corrosivity (acid). See Special Bulletin A, dated 15 October 1998.

B. Despite new fencing and signage to secure Site and restrict access, trespassing onto the Site continues as evidences by cuts into new fencing and refuse on the Site.

C. Estimated Costs

	Ceiling
EPA Direct	10,000
EPA Indirect	10,000
ERRs (OHM)	150,000
START	25,000
Unallocated	5,000
TOTAL	200,000

D. OSC requests that neutralization occur under a passive system. OSC requests that ERRs consider use of limestone spread in a depression that temporarily holds runoff before it enters Flint Run Creek. Consideration given to a 10-year storm of 6", but OSC feels that contact time with acidic waste of large amounts of runoff water will be too short to generate acid release in large quantity. Thus, "neutralization pond" will be placed to handle small amounts of runoff that will likely represent stronger acid releases.

II. Actions

A. ERRs contractor installed high visibility security fencing around northern waste disposal area and holes located along chain-link fence surrounding process area and large portion of southern waste disposal area. The facility gates were wired closed and posted.

B. ERRs contractor initiated preparations for installation of an erosion and sedimentation control facility (similar to a retention basin) intended to neutralize acidic release from northern waste disposal area. Some vegetation was removed where a neutralization pond was to be

installed.

C. OSC and START contractor continued assessment of the Site. Samples were collected from various locations including 1) a vessel which appears to be a combustion chamber located at the stack, 2) residue from a flue entering the stack, and 3) waste material located in a pipe chase on the east side of the facility.

D. OSC and ERRs discuss methods to neutralize release. Samples of waste material indicate that acid pH is less than 2.0. OSC requested a passive system. No design was requested, but a survey of the area was approved. ERRs will implement OSC decision with consideration for failure in a 6" rain event. All agreed that neutralization of water generated during 6" rain event would not be necessary.

E. OSC and START opened five test pits in the northern waste disposal area to determine the depth of the fill and the contents of the fill. Material is mainly brick and ash with large amounts of yellowish (sulphuric) material. Water filling one of the pits is acidic (pH = 1.0)

III Future Actions

A. Install Neutralization Pond in northern waste disposal area.

B. Consider need for neutralization of releases from southern disposal area and investigate if source of releases may originate from processing area.

C. Complete Assessment of Site.

_____

Michael Towle, OSC
EPA Region III
Philadelphia, PA 19103

ORIGINAL

POLREP 03
Stauffer Chemical Site
Rtes. 340 and 613
Bentonville, Warren Co., VA

ATTN: RRC, C. Kleeman

I. Situation (as of 30 October 98)
Event: Removal Action

A. Warren County officials have requested that the OSC attend a public meeting to inform interested communities members about the Stauffer Chemical Site and EPA's actions at the Site. The Site is in the middle of a small residential community. The public meeting is scheduled for 04 November 98 at the South Warren Fire Co. The scheduled time is 1930.

B. The OSC has continued conducting an assessment of the processing area of the Stauffer Chemical Company in Bentonville. The OSC has found that some community members have working knowledge. Assessment proves difficult because the facility is largely overgrown and severely deteriorated. The stack at the Site has large open cracks and appears ready to fall. Additionally, much of the facility is in a serious state of deterioration as evidenced by cracked and falling walls, fallen steel walkways, and deteriorated steel members. The corrosive nature of the plant operation is evidenced in crumbled and eaten concrete and steel. Some pits at the Site contain corrosive liquid (pH < 2.0). Waste, which appears sulphuric, is located in numerous areas. Some of the condensers and pipelines at the Site contain residual unknown materials. Asbestos (suspect) wrapping at the Site is in very poor condition and largely fallen to the ground both inside and outside of the facility buildings.

C. Estimated Costs

	Ceiling
EPA Direct	10,000
EPA Indirect	10,000
ERRs (OHM)	150,000
START	25,000
Unallocated	5,000
TOTAL	200,000

II. Actions

A. ERRs completed installation of a small neutralization pond immediately north of the northern waste disposal area to temporarily hold acidic runoff water before it exits the Site. A small depression was dug and limestone was spread in the depression. The inlet and outlet were rock lined intending the withstand 10-year storm flow.

B. ERRs continues to maintain security fencing although trespassers continue to enter.

C. OSC and START continue assessment of processing area. Two underground storage tanks were located. Additionally, small outbuildings containing old cans and drums were also identified. Scattered drums, most empty, were also identified east of the facility in a wooded area. A sand filter (which likely collected wastes from the office/laboratory) was also identified next to a pond on the west side of the railroad tracks.

III. Future Actions

A. Complete restoration of small disturbed area caused by placement of neutralization pond.

B. Complete assessment of Site and collection/analysis of samples.

C. Determine if processing area contributes to acidic release.

D. Attend public meeting.

Michael Towle, OSC
EPA Region III
Philadelphia, PA 19103

ORIGINAL

POLREP 04
SPECIAL BULLETIN B
Stauffer Chemical Site
Rtes. 340 and 613
Bentonville, Warren Co., VA

SUBJECT: Clarification of Scope

FROM: Michael Towle, OSC

ATTN: RRC, C. Kleeman, D. Carney

DATE: 06 November 1998

I. Situation

The OSC initiated removal activities at this abandoned carbon disulfide manufacturing facility 15 October, 1998, by activating 200K to restrict access to hazardous substances and pollutants at the Site and to neutralize releases of acidic liquid from the Site. This Special Bulletin clarifies the scope of the action to necessitate consolidation of acidic waste materials to best restrict access and control and then neutralize acid releases.

II. Discussion

Initial efforts to restrict Site access are proving difficult. The Site is large and eroding waste materials have spread out onto residential properties. Despite repair to fencing and installation of additional fencing, trespassing is still evident and EPA is spending extra effort to maintain security fencing. The OSC is hopeful that statements at a recent public meeting will increase awareness of the threats posed by the Site and reduce trespassing into waste areas.

Initial efforts to neutralize acid release from the Site involved installation of limestone at the point where most acidic liquid runoff exits the northern waste disposal area. While the OSC is confident that liquid runoff from the northern disposal area will not exhibit pH less than 2.0 during routine releases, there is likely to be little control of larger storms and acid ponding will still occur.

Inspection of the disposal area indicates that the water table may lie within the waste in certain areas. As such, there is no information available to suggest that EPA's efforts will successfully neutralize releases to the surface water which originate from deeper within the disposal area.

Waste materials are typically, ash, brick and sulphur-based wastes. Testing of the waste materials strongly indicate that the sulphuric-based waste materials are those that generate the

acidic release. These materials, typically yellow or yellow-green in color, are spread throughout the entire depth and area of the northern and southern disposal locations.

Initial efforts to neutralize the release from the southern disposal area are proving difficult. The waste is spread over a large area and exits the Site in a number of locations. Waste volume estimates suggest that effort to first consolidate the waste materials into a central location will best serve the scope.

Given the above information, the OSC determines that the neutralization and access restriction scope is best served by consolidating waste materials. The acid-producing and other wastes are inseparable and co-disposed; thus, all wastes will be consolidated together in an effort to best control hazardous runoff and acid ponding. Consolidated waste areas will also prove easiest to control from an access standpoint (currently waste has spread thinly over a large area down-gradient to the main disposal areas).

III. Actions

The OSC has authorized the cleanup contractor to consolidate the waste materials to best control and neutralize acid release and to best restrict access to hazardous substances in the disposal areas.

ORIGINAL

POLREP 05
Stauffer Chemical Site
Rtes. 340 and 613
Bentonville, Warren Co., VA 22610

ATTN: RRC, C. Kleeman

I. SITUATION (as of 06 November 98)
EVENT: Removal Action

A. Removal activities at this Site remain focused on the restriction of access to hazardous substances identified at the Site and efforts to neutralize acidic releases from the Site. A security fence encloses disposal areas and holes in the chain link fence which enclose the processing area. The OSC issued a Special Bulletin (POLREP 04) which clarified the scope effort to neutralize the release. The OSC determines that consolidation of the waste is the best method to control acidic releases.

B. Investigation of the processing area suggests that hazardous substances remain within. Although much of the process area is inaccessible due to degraded structures, pipelines and vessels observed still contain residual unknown materials. Additionally, pits at the Site contain acidic liquid and solid materials which leach acidic liquid. However, although surface runoff from the processing area drains through the disposal areas and contributes to the acidic release, the OSC does not believe that surface water flow from the processing area is acidic in nature.

C. Estimated Costs

	Current	Ceiling
EPA Direct	3,500	10,000
EPA Indirect	6,000	10,000
ERRs (OHM)	20,347	150,000
START		25,000
Unallocated		5,000
TOTAL	29,847	200,000

NOTE: The current Delivery Order ceiling with ERRs is $70,000

II. ACTIONS

A. ERRs contractor initiated effort to establish neutralization controls in southern disposal areas. The OSC determined that runoff from this area may not be controlled without consolidation of materials and redirecting the drainage. As such, effort was stopped and redirected to consolidate the materials to better control acidic runoff.

B. OSC and START complete assessment of the processing area. Several samples were

collected and sent for laboratory analysis. Analytical results are expected in 2 weeks.

C. OSC directed ERRs to prepare for waste consolidation activities by obtaining a cover for piles and a water source for dust suppression.

D. OSC prepared a draft Action Memorandum for removal activities at the Stauffer Site and requested a Delivery Order ceiling increase to 150,000 for ERRs.

E. At public meeting, residents living near the Site requested well sampling. OSC agreed to sample those living near the Site for parameters related to the Site. OSC also discussed potential action (or lack of action) dependent upon results.

F. OSC discussed removal activities likely occur in the northern area with land owner.

III. FUTURE ACTIONS

A. Consolidate waste materials to better control acidic runoff.

B. Evaluate analytical data.

C. Coordinate well sampling with residents.

Michael Towle, OSC
EPA Region III
Philadelphia, PA 19103

ORIGINAL

POLREP 06
Stauffer Chemical Site
Rtes. 304 and 613
Bentonville, VA 22610

Attn: RRC, C. Kleeman

I. SITUATION (as of 19 November 98)
EVENT: Removal Action

A. Removal activities at this site currently focus on the consolidation of waste to best control the acidic release. The majority of waste in the northern disposal area has been consolidated into a large pile and is covered with plastic sheeting awaiting disposal. Consolidation work has begun in the southern disposal area.

B. Waste in the southern disposal area appears to lie both on the former Stauffer facility and on ground which, based on the fence location, appears to now be private property. A search was conducted at the Warren County Court House to identify the individual(s) who own the adjacent property. The search identified two local individuals owning two separate land parcels. When the OSC contacted the local residents, they denied owning the land. A review of aerial photography for the site shows that the facility boundary fence in this southern portion of the site has been moved "inward" from an earlier location. A 1958 aerial photograph (and later photos) show the fence at its apparent current location; a 1950 photograph shows the fence roughly 35 yards south of the current location. The reason for this fence relocation is unknown. The OSC assumes that the land lying in this roughly 35 yard wide "unclaimed" area is part of the old Stauffer facility and owned by the site trustee.

C. Estimated Costs:	Current	Ceiling
EPA Direct	5,000	10,000
EPA Indirect	7,500	10,000
ERRs (OHM)	38,040	150,000
START		25,000
Unallocated		5,000
TOTAL	40,540	200,000

II. ACTIONS

A. ERRs contractor has completed consolidation activities at the northern waste disposal area. The pile is covered and awaiting disposal.

B. ERRs contractor recently (11/18/98) moved to the southern waste disposal site and began consolidation activities. OSC and ERRs contractor determined that the waste lying beyond the southern fence boundary is up to four feet deep in areas.

C. OSC called assumed owner of parcel 10B (based on Warren County Deed records) lying immediately south of the site. Owner denied access saying all his property is north of the railroad tracks (10B lies south of the tracks). OSC located assumed owner of parcel 11 immediately south of the site and visited the area with this individual. Assumed owner denied access saying his parcel ends approximately 20-30 yards south of the current site fence as evidenced by existing old wooden fence posts (no fence exists) for his boundary. These old fence posts may line up with the fence appearing in the 1950 aerial photo.

D. OSC determined that one resident on Stonewall Jackson Highway who requested well sampling is approximately 3/4 mile south of the site and it is highly unlikey that the groundwater in this area is affected by site contaminants.

E. TAL Metals and pH analytical data obtained for six samples collected by SATA Contractor on 10/22/98 from various former facility locations (stack, secondary combustion chamber, electrical room, stained soil by drum, NaOH pit, sump).

FUTURE ACTIONS

A. Continue consolidation activities in southern waste disposal area.

B. Identify possible disposal location for consolidated waste.

C. Coordinate well sampling with residents. Consider additional outreach to make known to residents our offer to conduct well sampling.

D. Evaluate analytical data for six samples from facility locations.

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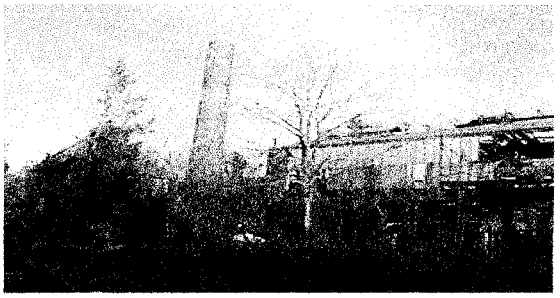
Jack Kelly, OSC
EPA Region III
Philadelphia, PA 19103

ORIGINAL



POLREP 07
Stauffer Chemical Site
Rtes. 304 and 613
Bentonville,VA 22610

Attn: RRC, C Kleeman

I. SITUATION (as of November 25, 1998)
EVENT: Removal Action

A. Removal activities at this site continue to focus on the consolidation of waste to best control the acidic release. The majority of waste in the northern disposal area has been consolidated into a large pile and is covered with plastic sheeting awaiting disposal. Consolidation work is proceeding in the southern disposal area.

B. Estimated Costs:	Current	Ceiling
EPA Direct	6,641.20	10,000
EPA Indirect	11,136.00	13,000
ERRs (OHM)	58,500.00	150,000
START	23,123.90	25,000
Unallocated		2,000
TOTAL	99,401.10	200,000

II. ACTIONS

A. Consolidation work continues in the southern portion of the site. In order to gain access to waste beyond the property fence, a portion of the fence was removed.

B. The OSC spoke with a resident regarding the old Stauffer pump house and well which are now located on his property. This resident is one of the individuals erroneously believed to own a parcel of land just south of the Stauffer plant (see POLREP 6). The pump house has deteriorated greatly and is no longer used. The resident indicated that his deceased father many years ago had another well on the property which he used for gardening. This well is no longer existant and the former well location is now covered by a concrete porch. The resident now uses a cistern for potable water. The resident indicated that he believes his adjacent neighbor to the south occasionally uses a shallow well for gardening only but also utilizes a cistern for potable water.

C. The OSC sent an ARARs request letter to the local office of the VADEQ on November **16**, 1998 and called the VADEQ contact. A message was left on voice mail. As of November 23, no response

ORIGINAL

II. ACTIONS

A. Consolidation work continues in the southern portion of the site.

B. The OSC and START Structural Engineer toured site and the structural integrity of the Retort Building, Generator Building and Smoke Stack was evaluated. Preliminary report is that with the exception of the Smoke Stack, the Retort and Generator Buildings are structurally sound.

C. OSC is coordinating the well sampling with local residents. It was determined that a ½ mile radius from the site will be used to determine the extent of home well sampling.

III. FUTURE ACTIONS

A. Continue waste consolidation activities.

B. Identify possible disposal location for consolidated waste.

C. Coordinate well sampling with residents. Consider additional outreach to make known to residents our offer to conduct well sampling.

D. Evaluate analytical data for samples collected from site.

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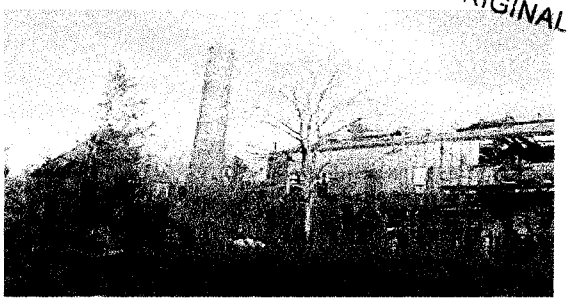
ROBERT F. KELLY, OSC
EPA REGION III
PHILADELPHIA, PA 19103

ORIGINAL



POLREP 08
Stauffer Chemical Site
Rtes. 304 and 613
Bentonville,VA 22610

Attn: RRC, C Kleeman

I. SITUATION (as of December 04, 1998)
EVENT: Removal Action

A. OSC Kelly was notified on 12/01/98 of approval of Action Memorandum and authorization of additional funding to continue response action. The approved Action Memo increases the project ceiling to $1.6 million.

B. Removal activities at this Site remain focused on the consolidation of waste in the southern portion of the site. Both the northern and southern stockpiles of contaminated soil have been covered with 6 mil poly sheeting as a means to suppress dust and to control acidic release in the event of a storm or high wind occurrence.

C. An area near the southeast corner of the site, along the private road leading to Quail Hollow Estates, was cleared and graded for the EPA Command Post and site parking. Several loads of crushed stone were delivered to this location and spread across this area. The access road leading to the southern stockpile of contaminated waste was also widened in preparation for the transport of the waste material offsite.

D. Virginia Daily News crew was on site 12/03/98 to conduct interview with OSC and photograph site and removal activities.

E. Weather: (week of 11/30/98) Clear skies with unseasonably warm temperatures ranging from upper 40s in AM to upper 60s in PM. Drought conditions still exist for the Shenandoan Valley area.

F. Personnel onsite: EPA-1, SATA (LHP)-1, ERRs (OHM)-5

G.

Estimated Cost	Current	Ceiling
EPA Direct	$ 7,843.00	$ 42,000
EPA Indirect	$13,120.00	$ 80,000
ERRs (OHM)	$72,324.25	$1,415,880
SATA (LHP)	$26,528.07	$ 70,000
	$119,815.32	$1,607,880

was received.

D. Demobilization commenced early on November 25 in anticipation of the Thanksgiving holiday.

III. FUTURE ACTIONS

A. Continue waste consolidation activities.

B. Track progress of the draft Removal Action Memorandum submitted for concurrence November 6.

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ROBERT F. KELLY, OSC
EPA Region III
Philadelphia, PA 19103

ORIGINAL

TABLE 1
SUMMARY OF VOC ANALYSIS
RESIDENTIAL WELL SAMPLING
STAUFFER CHEMICAL SITE
BENTONVILLE, WARREN COUNTY, VA

Sample ID		TB-1	FB-1	HW-1	HW-2	HW-3	HW-4	HW-5	HW-6	HW-7	HW-8	HW-9	HW-10	HW-11	HW-12	HW-14
Date Sampled		1/13/99	1/13/99	1/12/99	1/12/99	1/12/99	1/12/99	1/12/99	1/12/99	1/12/99	1/12/99	1/12/99	1/14/99	1/12/99	1/12/99	1/13/99
Date Analyzed		1/19/99	1/19/99	1/15/99	1/15/99	1/15/99	1/15/99	1/18/99	1/18/99	1/18/99	1/18/99	1/18/99	1/20/99	1/18/99	1/18/99	1/19/99
Dilution Factor		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Chemical Name	Detection Limit															
Chloromethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromomethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Vinyl chloride	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Methylene chloride	2	2U	2U	2U	2U	2U	2U	2U	2U	2U	2U	2U	2U	2U	2U	2U
Acetone	5	5U	17	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	6U	5U	5U
Carbon disulfide	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,2-Dichloroethene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chloroform	1	1U	1U	1U	0.8 J	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
2-Butanone	5	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	6U	5U	5U
Bromochloromethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,1-Trichloroethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Carbon tetrachloride	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromodichloromethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
cis-1,3-Dichloropropene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Trichloroethene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Dibromochloromethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Benzene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Bromoform	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
4-Methyl-2-pentanone	5	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
2-Hexanone	5	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Tetrachloroethene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dibromoethane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Toluene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Chlorobenzene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Ethylbenzene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Styrene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
Xylenes (total)	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,3-Dichlorobenzene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,4-Dichlorobenzene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dichlorobenzene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2-Dibromo-3-chloropropane	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
1,2,4-Trichlorobenzene	1	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U

Notes:
ug/L = micrograms per liter
U = not detected
J = estimated value

DRAFT

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

ORIGINAL

Agency for Toxic Substances
and Disease Registry
Atlanta GA 30333

MEMORANDUM

Date: March 26, 1999

From: Senior Regional Representative
ATSDR Region III

Subject: Health Consultation
Stauffer Chemical Company

To: Robert Kelly
EPA On Scene Coordinator (3HS31)

Glen Lapsley
EPA On Scene Coordinator (3HS32)

Attached is a copy of an ATSDR Record of Activity type health consultation for Stauffer Chemical Company, Bentonville, Warren County, Virginia, dated August 21, 1998. This health consultation is in response to the U.S. Environmental Protection Agency Region III's request for the Agency for Toxic Substances and Disease Registry (ATSDR) to determine if the levels of contamination found at the Stauffer Chemical Company site represent a public health threat.

The primary intent of this health consultation is to inform you of the actions ATSDR has recommended in order to prevent or mitigate exposures to the contaminants of concern at the site. Upon your review, please inform us if you plan to take any action to address all or some part of the recommendations made. Also, please inform us if you discover significant errors in the document which could change its conclusions and recommendations. I can be reached at telephone number (215) 814-3139 or for written responses at the address listed below.

Charles J. Walters, Jr.
ATSDR
c/o US EPA Region III
Hazardous Site Cleanup
Division (3HS00)
1650 Arch Street
Philadelphia PA 19103

ORIGINAL

Attachment
cc: Monty Howie, Jr., ATSDR/DHAC/PERIS
Khizar Wasti, Ph.D., VADOH w/attachment
Mohmed Khodr, Warren County DOH w/attachment
Patricia McMurray, VADEQ w/attachment

FILE COPY

ORIGINAL

FINAL

Name: Stauffer Chemical Co.
LOG #: 98-

ATSDR Record of Activity

UID #: TYM4 Date: 08-21-98 Time: _____ am ___ pm ___

Site Name: Stauffer Chemical Company Site City: Bentonville
Cnty: Warren County State: VA
CERCLIS #: _____ Cost Recovery #: _____ Region: 3

Site Status: (1) _ NPL x Non-NPL _ RCRA _ Non-Site specific _Federal
(2) _ Emergency Response x Remedial __ Removal _ Other:

Activities

_ Incoming Call _ Public Meeting x Health Consult _ Site Visit
_ Conference Call x Data Review _ Written Response _ Training
_ Incoming Mail x Other: Technical Assist

Requestor and Affiliation: (1) Robert Kelly, OSC EPA Region III
Phone: (215) 814-3268
Address: 1650 Arch Street
City: Philadelphia State: PA Zip Code: 19103

Contacts and Affiliation

(31) Jack Kelly, Region 3 Rep. ( )_____
( )_____ ( )_____

1-EPA	2-USCG	3-OTHER FED	4-STATE ENV	5-STATE HLT	6-COUNTY HLT
7-CITY HLTH	8-HOSPITAL	9-LAW ENFORCE	10-FIRE DEPT	11-POISON CTR	
12-PRIV CITZ	13-OTHER	14-UNKNOWN	15-DOD	16-DOE	
17-NOAA	18-OTHR STATE	19-OTHR CNTY	20-OTHR CITY	21-INTL	
22-CITZ GROUP	23-ELECT. OFF	24-PRIV. CO	25-NEWS MEDIA	26-ARMY	
27-NAVY	28-AIR FORCE	29-DEF LOG AGY	30-NRC	31-ATSDR	

Program Areas

_ Health Assessment	_ Health Studies	_Tox Info-profile
_ Worker Health	_ Petition Assessment	_Health Surveilnc
_ Tox Info-Nonprofile	_ Admin	_ Emergency Response
_ Disease Registry	_ Subst-Spec Research	x Other (Technical Assist)
x Health Consultation	_ Exposure Registry	_ Health Education

RECEIVED

Background and Statement of Issues

Region III Environmental Protection Agency (EPA) requested the Agency for Toxic Substances and Disease Registry (ATSDR) determine if the levels of contaminants at the Stauffer Chemical Company site represent a public health threat [1].

REGION III

MAR 11 1999

Name: Stauffer Chemical Co.
LOG #: 98-

The Stauffer Chemical Company site is located in Bentonville, Warren County, Virginia [2]. The primary land use adjacent to the Stauffer Chemical site is residential. Surrounding the site to the north are residential homes, a gas station and railroad track; to the east are the Quail Hollow Estates (new housing development, currently with one home), residential homes, and a farm; and to the south and west are residential homes (See Attachment A- Stauffer Chemical Site Maps; Figures 1 & 2) [2].

The former Stauffer Chemical Company manufactured carbon disulfide. The facility is approximately 124 acres in size and includes the following areas [2]:

- The production area is approximately 13 acres in size and includes a coal storage area, two carbon disulfide pits (approximately 5,000 square feet in size), a cooling tower, two water reservoirs, a pump house, a gas well, and a barren area used for disposing of ash and sulfur (approximately 0.5 acres in size) that is located in the southwest corner of the production area. In addition, the storage area located in the production area contains raw materials (e.g., powdered coal and sulfur).

- The brick dump and acid pond areas comprise approximately 13 acres of the site (See Attachment B: Stauffer Chemical Company Site Sampling Locations). The brick dump area is approximately 2 acres in size and was also used for disposing of ash and sulfur wastes. The acid pond area has been drained, however a drainage ditch flows northeast along the railroad tracks to an offsite pond (the northeast pond) and into the Flint Run Creek [2].

Public access to the site is unrestricted. Access to the site may be gained from unsecured gates and fencing, and from railroad tracks that once served the facility. Evidence exist on site that the area is being used for recreational purposes; a skateboard ramp was built in one of the abandoned buildings and a swim suit was found next to the cooling water reservoir [3]. As indicated by site photos taken in April 1998, offsite migration of contaminants is potentially occurring from the onsite acid pond drainage flowing along a ditch adjacent to the railroad tracks [2].

The following physical hazards exist on site [2,3]:
- buildings and structures in poor to dilapidated condition;
- large sheets of heavy plate glass positioned horizontally in onsite dilapidated buildings;
- debris located throughout the site;
- metal vats, containers and equipment located inside the onsite buildings are highly corroded and rusted;
- underground storage tanks with easy access from the ground surface; and
- water filled reservoirs and cooling towers.

Previous environmental sampling (soil, surface water, groundwater) in 1982 and 1984 by

EPA and the Commonwealth of Virginia SWCB (SOLID WASTE CONTROL BOARD) [redacted] determined that contaminated drainage areas from the site (e.g., acid pond, drainage ditches, surface water run-off from the production area) have negatively impacted the ecology, including fish species in the Flint Run Creek [2]. Only general information concerning the levels of contamination was provided in Reference 2.

On April 14, 1998, EPA collected soil, sediment, aqueous waste, and solid waste samples at the Stauffer Chemical site. The samples were analyzed for polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, reactive sulfide, volatile organics (VOCs), and metals as indicated below for the specific samples noted [4]. The pH was also determined for soil, sediment, and waste pile samples. Sampling locations were determined by visual inspection of surface contamination and areas most likely to have been impacted by former site operations.

On-site data collected:

1. Four soil samples were collected on site (only one sample location indicated the depth the sample was collected from). One soil sample (SS-14) was collected from 0 to 12 inches and analyzed for VOCs, metals, pH, and reactive sulfide. The pH was measured at 6.8. No VOCs, metals, or reactive sulfide were detected above detection limits or at levels of health concern.

   One soil sample (SS-7) was collected from an unspecified depth from a barren area located in the southeast corner of the site and analyzed for metals, pH, and reactive sulfide. The pH was measured at 2.6. No metals or sulfides were detected above method detection limits or at levels of health concern.

   Two other soil samples (SS-16, SS-17) were collected from unspecified depths from the western and eastern portions of the transformer area and were only analyzed for PCBs. The levels of PCBs detected in the two samples were less than 1 parts per million (ppm) (0.38 ppm and 0.19 ppm).

2. Fourteen sediment samples (SS-1- 3, SS-5, SS-8-11, SS-13, SS-15, SS-18, SS-22, SS-23, SS-25) were collected on site from various depths (2 to 12 feet) below water surfaces and from various depths (0 inches to 7 feet) below organic material. Most of the sediment samples were analyzed for VOCs, metals, pH, and reactive sulfide; however, samples SS-22 and SS-25 were not analyzed for VOCs.

   The following levels of contaminants were detected in onsite sediment samples: total PAHs ranged from none detected to 106.6 ppm (SS-1, collected 5 feet below the surface); pesticides (heptachlor epoxide, 4,4'-DDE, and 4,4'-DDD) ranged from none detected to 8.8 parts per billion (ppb); cyanide ranged from 1.3 ppm to 40.7 ppm; sulfide ranged from none detected to 21.1 ppm; arsenic ranged from 7 to 46.7 ppm; and lead ranged from 10.8 ppm to 2,450 ppm. The pH ranged from

1.5 to 7.8 (the pH of seven samples ranged from 1.5 to 3.5). No other contaminants were detected above method detection limits or at levels of health concern.

3. Two aqueous samples were collected on site. One aqueous sample (AQ-1) was collected from the concrete sump in the sulfur heating area and analyzed for VOCs. No VOCs were detected above the method detection limits or at levels of health concern.

   The other aqueous sample (AQ-2) was collected from inside an underground storage tank and analyzed for metals and pH. No metals were detected above the method detection limits or at levels of health concern. The pH data for aqueous sample AQ-2 was not included in the data package.

4. Three solid waste samples were collected on site. Two solid waste samples (SS-04, SS-06) were collected from a concrete sump in the sulfur heating area and the other sample (SS-20) was collected from a reactor vessel. The solid waste samples were analyzed for metals, pH, and reactive sulfide. No metals or sulfides were detected above method detection limits or at levels of health concern. However, the pH values for the solid waste samples ranged from 2.0 to 3.5. Total cyanide was detected at 26 ppm and 1,370 ppm from the waste piles located at sampling locations SS-6 and SS-4, respectively.

Off-site data collected:

1. One aqueous sample (RR-DD-1; milky-white in color; surface water run-off) was collected off site. The sample was analyzed for VOCs, reactive sulfide, phosphates, sulfates, and metals. The following contaminants were detected in the aqueous sample: sulfates (470 milligrams per liter (mg/L)); lead (94.3 micrograms per liter (ug/L)); total chromium (2420 ug/L); aluminum (1.74 E+07 ug/L); heptachlor epoxide (0.26 ug/L; however, this value was qualified as P); chrysene (13 ug/L); fluoranthene (37 ug/L); phenanthrene (14 ug/L); and pyrene (25 ug/L). No other contaminates were detected above method detection limits or at levels of health concern. The "P" qualifier indicates that there was a reported value from a GC analysis greater than 25% difference for detected concentrations between two GC columns.

2. Two sediment samples were collected off site. One sediment sample (SS-24) was collected from a depth of 6 to 12 inches from a drainage ditch leading to the Flint Run Creek and analyzed for VOCs, metals, pH, and reactive sulfide. The pH of the sediment sample was measured at 2.3. No contaminants were detected above detection limits or at levels of health concern.

The other sediment sample (SS-12) was collected from a pond located south of the site and analyzed for metals, pH, and reactive sulfide. No data was included for this sampling point in the data package evaluated.

Discussion

Currently, several physical hazards exists on site (e.g., poor conditions of several onsite dilapidated buildings, underground storage tanks with easy accessible openings at the surface, water reservoirs, and cooling towers) that may pose a health threat to anyone who may gain access to the site. In addition, evidence exists that trespassing by people living near the site is occurring (e.g., a skateboard ramp located in one of the abandoned buildings, and a swim suit found next to the water reservoir).

Onsite Sampling
Soil, sediment, and waste pile samples were determined to have low pH values (>2 pH). The low pH of the soil and waste piles may represent a public health threat from direct contact to the soil or waste piles. The low pH detected in the sediments do not represent a health threat unless the sediments are excavated and brought to the surface where direct contact may occur.

The soil and sediment samples also contained elevated levels of lead (2,450 ppm), arsenic (46 ppm), and total PAHs (106 ppm). Cyanide was detected in one of the onsite waste piles at 1,370 ppm. The levels of lead, arsenic, total PAHs, and total cyanide detected in the soil are unlikely to represent a public health threat, since it is unlikely that a child (most sensitive population used to estimate exposure dose) would have frequent exposures to the contamination through incidental ingestion or direct contact. Adverse health effects are not expected from these infrequent exposures. However, if the land use for this site changes to residential these levels of contaminants may pose a potential health threat to children.

Two aqueous samples were collected on site. One aqueous sample was collected inside a storage tank and analyzed for metals and pH; and the other aqueous sample was collected from the concrete sump in the sulfur heating area and analyzed for VOCs. The levels of metals and VOCs detected in these samples do not represent a public health threat. The pH data from the aqueous sample collected from the underground storage tank was not included in the data evaluated.

Offsite Sampling
One sediment sample had a pH of 2.3. The low pH detected in the sediment sample does not represent a health threat unless the sediment is brought to the surface (e.g., construction of new homes) where direct contact may occur.

One offsite aqueous sample (surface water run-off) was analyzed and indicated elevated

levels of lead, total chromium, aluminum, beryllium, antimony, and sulfates. Low levels of PAHs and pesticides were also detected in the aqueous sample. The levels of contaminants detected in the offsite aqueous sample are unlikely to represent a public health threat, since it is unlikely that a child would have frequent exposures to the contamination through incidental ingestion or direct contact. Adverse health effects are not expected from these infrequent exposures. However, the volume of surface water run-off contamination (milky white in color) emanating from the site and the impact it has had on the groundwater over time is unknown.

No surface soil samples were collected off site.

No groundwater or surface water *monitoring* has been conducted at the site to determine if the groundwater has been impacted or continues to be impacted by site-related contaminants.
that may pose a health threat to anyone who may gain access to the site

Conclusions

From the current information and data evaluated from the Stauffer Chemical Company site, ATSDR concludes that the site represents a public health threat to anyone who may gain access to the site (trespassers) due to onsite physical hazards and direct contact exposure to low pH soil, sediment, and waste piles.

Offsite migration of site-related contamination is occurring. Therefore, offsite soil, surface water, and groundwater are at risk of becoming contaminated.

The nature and extent of onsite and offsite surface soil and groundwater contamination has not been fully characterized. Additional sampling of surface soil, surface water, and groundwater on and off site is necessary to determine if site-related contaminants are at levels of public health concern.

Recommendations

1. Restrict public access to the site.

2. Post signs around the perimeter of the site indicating that on site physical hazards and soils with low pH exist in areas throughout the site and that these conditions may pose a public health threat.

3. Prevent offsite migration of site-related contaminants (surface water run-off).

4. Collect additional surface soil samples (0 to 3 inches) to characterize the nature and extent of onsite surface soil contamination and offsite migration of site-related contaminants.

5. Conduct a private well survey down gradient from the site. If private wells are located down gradient from the site, then test the potable water to determine if site-related contaminants are at levels of public health concern.

ORIGINAL

If further clarification is required or when additional information becomes available, please contact this office at 404/639-0616.

Tammie McRae, M.S. Date: February 11, 1999

Region IV Representative Concurrence Date: 2/23/99

ORIGINAL

Name: Stauffer Chemical Co.
LOG #: 98-

cc:
PERIS
Susan Moore, Section Chief EICB/CS
Bucky Walters, Region 3 ATSDR Senior Regional Representative
Tammie McRae, EICB/CS

References

1. Memorandum from Jack Kelly ATSDR Regional Representative; to Lynn Wilder, Acting Section Chief EICB/CS; Requesting technical assistance for the Stauffer Chemical Company Site. July 14, 1998.

2. Tetra Tech EM Inc. Sampling Plan, Stauffer Chemical Company Site, Bentonville, Warren County, Virginia. Prepared for U.S. Environmental Protection Agency Region III, Federal Facilities and Site Assessment Section. April 13, 1998.

3. ATSDR Record of Activity for the Stauffer Chemical Company Site located in Bentonville, Warren County, Virginia. Prepared by Jack Kelly ATSDR Region III Representative. July 24, 1998.

4. Memorandum from Kevin Scott, Tetra Tech EM Inc.; to Robert Kelly, OSC EPA Region III. Attachment 1 Analytical Data for the Stauffer Chemical Company Site. May 28, 1998.

ORIGINAL

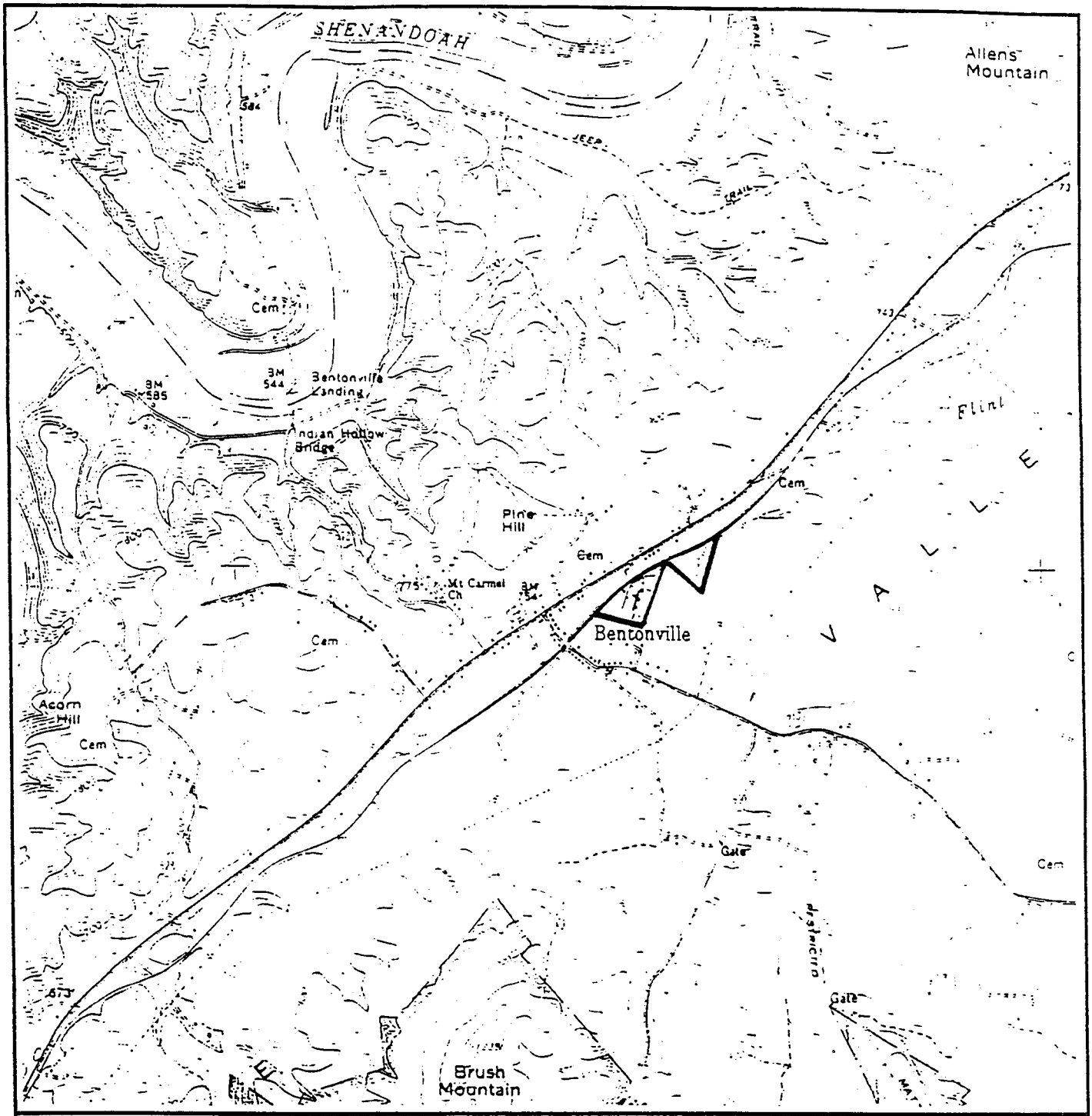
Name: Stauffer Chemical Co.
LOG #: 98-

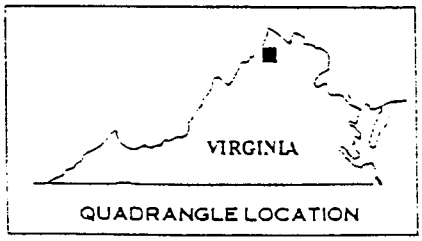
Attachment A

Stauffer Chemical Site Maps
Figures 1 & 2

ORIGINAL

DATE: 03/20/98 DWF ON FILENAME: R:\SDW\980115\3\SITE-LOC.DSF





QUADRANGLE LOCATION

1000' 0 2000' 4000'

SCALE IS APPROXIMATE

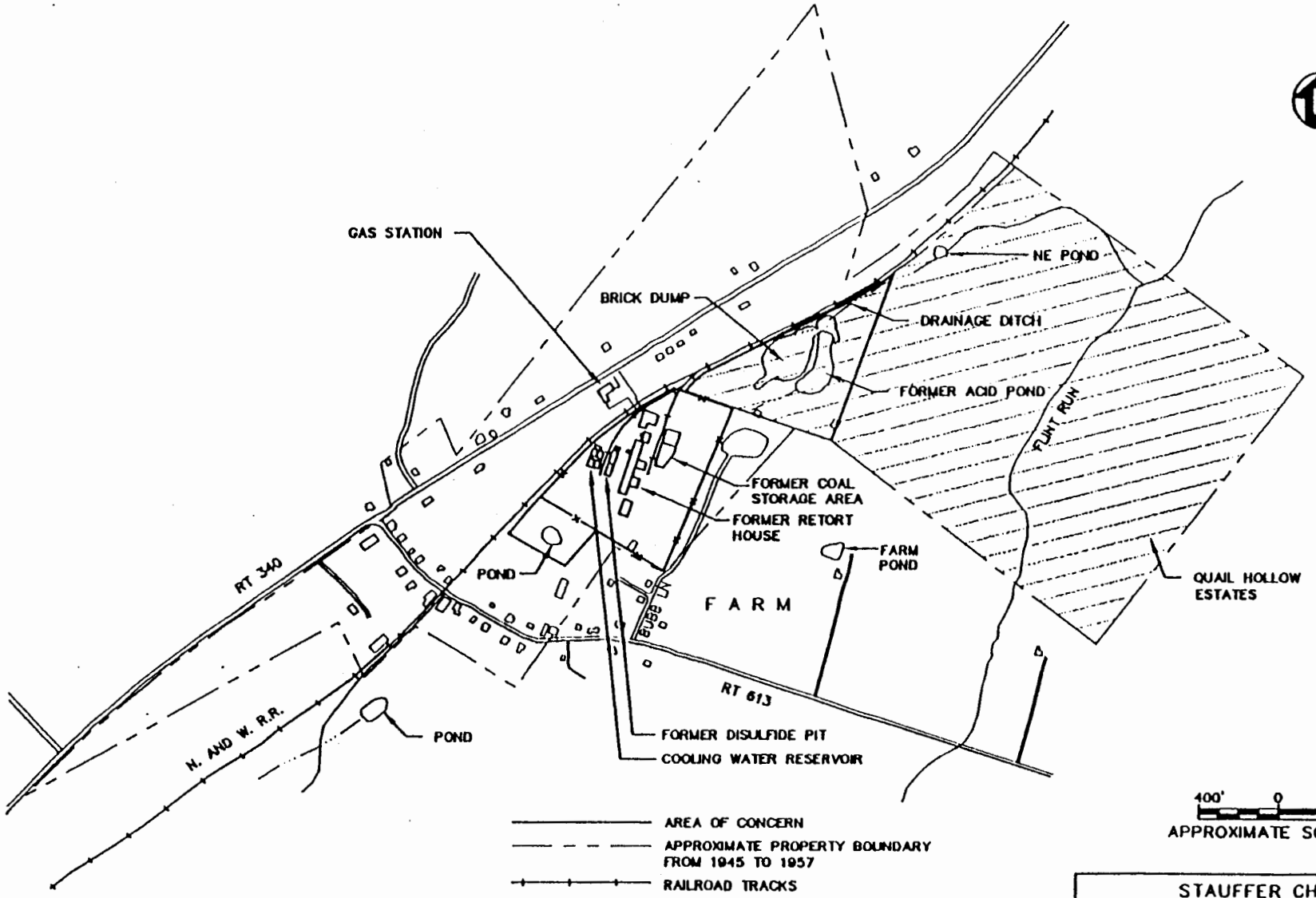
Modified from USGS 7.5 Minute Topographical Map Bentonville, VA. 1966 revised 1972.

STAUFFER CHEMICAL SITE
BENTONVILLE, VIRGINIA

FIGURE 1
LOCATION MAP

Tetra Tech EM Inc.

DATE: 03/31/98 DMF DN FILE NAME: R:\393\N980\1153\STF-LOC.DWG



SOURCE: MODIFIED FROM EPA VA-273, 1979 USGS BENTONVILLE QUAD, 1972 NUS, 1985

STAUFFER CHEMICAL SITE
BENTONVILLE VIRGINIA

FIGURE 2
SITE LOCATION MAP

Tetra Tech EM Inc.

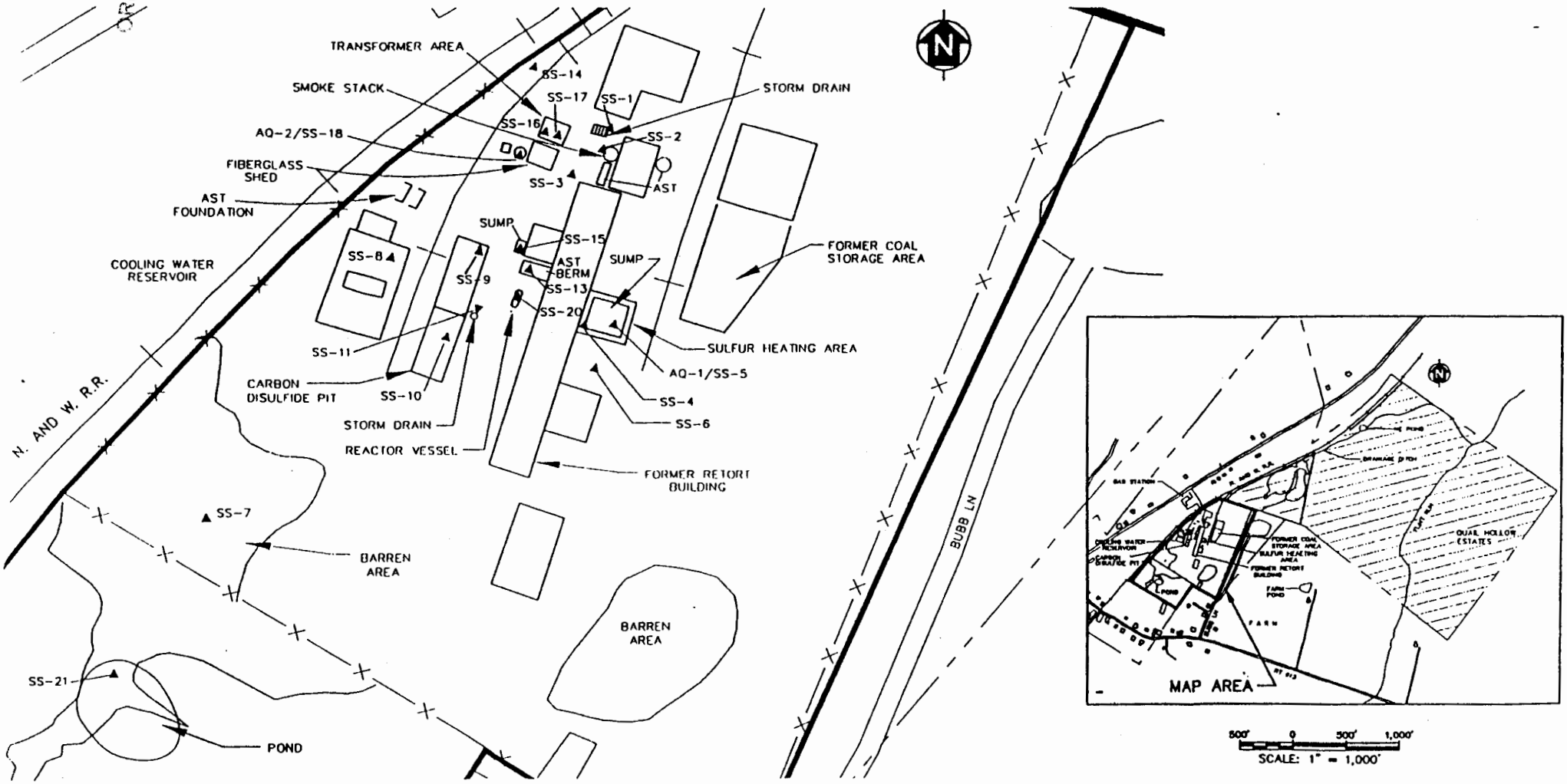
ORIGINAL

Name: Stauffer Chemical Co.
LOG #: 98-

Attachment B

Stauffer Chemical Site Sampling Location Maps
Figures 3 & 4

ORIGINAL



LEGEND

- ▲ AQUEOUS/SEDIMENT SAMPLE
- AREA OF CONCERN
- RAILROAD TRACKS
- FENCE
- PERENNIAL STREAM
- INTERMITTENT STREAM
- HOMES

50 0 50' 100'
SCALE: 1" = 100'

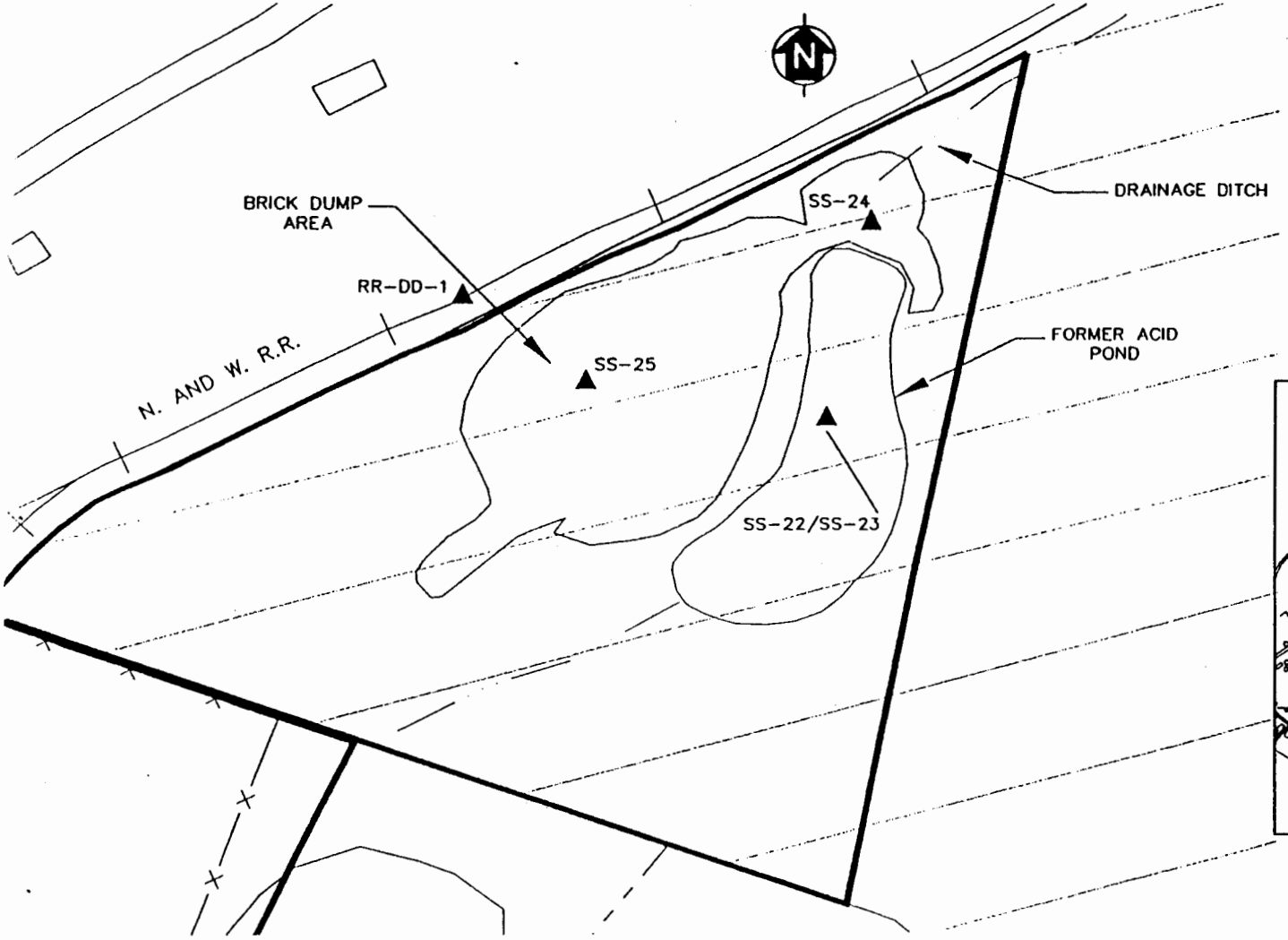
MODIFIED FROM EPA VA-273, 1979 USGS BENTONVILLE QUAD, 1972 NUS, 1985.

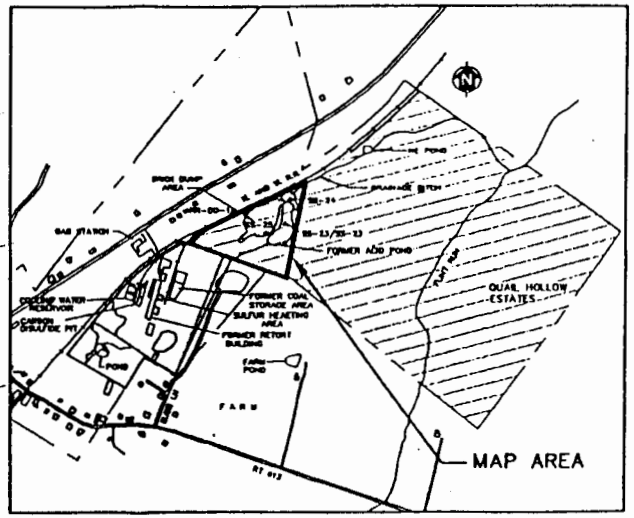
STAUFFER CHEMICAL SITE
BENTONVILLE, VIRGINIA

FIGURE 3
ON-SITE SAMPLE LOCATIONS

Tetra Tech EM Inc.

ORIGINAL





500' 0 500' 1,000'
SCALE: 1" = 1,000'

LEGEND

- ▲ AQUEOUS/SEDIMENT SAMPLE
- AREA OF CONCERN
- RAILROAD TRACKS
- FENCE
- PERENNIAL STREAM
- INTERMITTENT STREAM
- QUAIL HOLLOW ESTATES
- HOMES

50' 0 50' 100'
SCALE: 1" = 100'

DIFIED FROM EPA VA-273, 1979 USGS BENTONVILLE QUAD, 1972 NUS, 1985.

STAUFFER CHEMICAL SITE
BENTONVILLE, VIRGINIA

FIGURE 4
ON-SITE SAMPLE LOCATIONS

Tetra Tech EM Inc.